Technical Study 7

SURVEY OF MANPOWER PLANNING PRACTICES IN CANADA

R.J. Clifford and Associates

July 1981

LABOUR MARKET DEVELOPMENT TASK FORCE
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This is one in a series of technical studies prepared for the Task Force on Labour Market Development. The opinions expressed are those of the author and do not necessarily reflect those of the Task Force. They do not reflect the views of the Government of Canada.

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ABSTRACT

SURVEY OF MANPOWER PLANNING PRACTICES IN CANADA

R.J. Clifford and Associates

To put manpower planning in its proper context it was essential that overall corporate planning practices be reviewed. This necessitated differentiating between strategic and operations planning and detailing the practices of manpower planning within these two categories.

This study covers 154 companies from 15 industrial sectors located in four Canadian provinces (Alberta, Ontario, Quebec and Nova Scotia). It was carried out through in-depth interviews with senior corporate executives.

Ninety companies (58.4 per cent) had strategic plans. Within these plans, 59 companies included strategic manpower plans. However, nine of these were in time frames shorter than the minimum five years considered necessary for strategic planning. Indeed, most manpower planning time frames were shorter than the strategic plan time frame. Of the 90 companies, 76.7 per cent (69) had over 1000 employees, compared with only 58 per cent of the total survey being this large.

Operations plans were found in 147 companies. One industry (manufacturing/machine equipment) accounts for five of the seven firms who do not have a formal plan. One hundred and forty-five firms include a manpower plan prepared at least one year into the future. These plans range up to 10 years in the future, with a median of 2.2 years. Manpower planning in these 145 firms was reviewed from a number of different aspects. Criteria for identifying sophisticated

versus unsophisticated manpower plans were identified. Seventy-six of the 145 companies had sophisticated manpower planning processes based on these criteria.

Data for manpower planning are most often developed from internal corporate sources or from industry or management association sources. Government sources showed very limited use; programs such as the Canadian Occupational Forecasting Program (COFOR) and the Forward Imbalance Listing (FOIL) were unknown to many of the participants.

The participants show high levels of confidence in their manpower plans for the first two to three years. The confidence level then drops dramatically, and few feel that their current planning is valid five or more years into the future.

Five major areas of manpower shortages have existed in the recent past: managerial, technical, accounting, computer skills and skilled trades. Participants expect these shortages not only to continue but to increase in the 1980s with a net result of increased costs, less efficiency and less productivity.

Participants were receptive to an increased role in certain phases for provincial and/or federal governments. This was seen as a focused and a coordinating role. Industry does not want stringent rules and regulations imposed on it, but sees government as assisting where there is a perceived need. It should provide a voluntary pool of expertise where it can be of assistance. There must also be a regional focus on planning to work within the various labour markets in Canada. Natural industry groupings, where they exist, should be assisted by government to increase the effectiveness of their planning.

Analyses were made of various aspects of manpower planning by industry, by province and by size of each firm in the survey, and the following conclusions were reached:

Size: The median number of years planned increases with the size of the company. The key point seems to be at the 1000 employee size.

Province: Ontario and Alberta have companies with longer manpower planning time frames than Quebec and Nova Scotia. Quebec firms tend to have short time frames. Nova Scotia shows more variation by sector.

Industrial Sector: Firms in the primary extraction fields, utilizing high technology, have longer planning time frames, regardless of province or size. These firms are over-represented in Alberta.

We found that both industrial sector and province have a larger effect than size on the median number of years for which companies plan their manpower needs. Industry appears to have a larger effect than province.

Despite the use of advanced computer techniques, it was not statistically possible to predict accurately the effect on manpower planning of each of these variables. All three have important effects and all three inter-relate; e.g., some industries dominate a province and tend to be large in size. Thus, all three variables contribute to manpower planning (or the lack of it).

The report concludes with a prescription for progress to improve manpower planning in Canada which includes many of the above elements.

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LA PLANIFICATION DE LA MAIN-D'OEUVRE AU CANADA

R.J. Clifford & Associés

Pour situer la planification de la main-d'oeuvre dans son contexte, il a été nécessaire d'examiner l'ensemble des pratiques de planification des entreprises. A cette fin, il a fallu établir une distinction entre les plans stratégiques et les plans d'exploitation et exposer en détail les pratiques de planification de la main-d'oeuvre se rattachant à chacune de ces deux catégories.

Notre étude porte sur 154 entreprises réparties dans quatre provinces canadiennes (Alberta, Ontario, Québec et Nouvelle-Écosse) et dans 15 secteurs industriels. Elle a été réalisée par une équipe d'intervieweurs qui ont eu des entretiens poussés avec des cadres supérieurs des entreprises visées.

Nous avons constaté que 90 entreprises (58,4 %) appliquaient des plans stratégiques assortis, dans 59 cas, de plans stratégiques de main-d'oeuvre. Cependant, neuf de ces plans de main-d'oeuvre portaient sur des périodes plus courtes que le minimum de cinq ans jugé nécessaire pour la planification stratégique. En effet, on s'est rendu compte que, dans la plupart des cas, la période de planification de la main-d'oeuvre était plus courte que celle du plan stratégique d'ensemble. Parmi ces 90 entreprises, 76,7 % (69) comptaient plus de 1 000 employés, tandis que seulement 58 % du total des entreprises visées par l'étude avaient un effectif aussi important.

Du total des entreprises, 147 suivaient des plans d'exploitation. Cinq des sept entreprises n'ayant pas de plans officiels se retrouvraient dans un seul secteur: manufacturier/machines et équipement. On note que 145

entreprises avait un plan de main-d'oeuvre portant sur au moins un an et au plus dix ans, la médiane s'établit à 2,2 années. Nous avons examiné sous differents aspects la planification de la main-d'oeuvre dans ces 145 entreprises et établi des critères permettant de déterminer si cette planification étaient perfectionnée ou non. A partir de ces critères, on a constaté que 76 des 145 entreprises avaient des méthodes de planification perfectionnées.

Les données servant à la planification de la main-d'oeuvre sont, plus souvent qu'autrement, basées sur des renseignements provenant des entreprises, des secteurs d'activité ou encore des associations professionnelles de gestion. On n'utilise que très rarement les sources gouvernementales. Dans bien des cas, des programmes comme le Programme des prévisions relatives aux professions canadiennes (PPPC) et la Liste anticipative des déséquilibres dans les professions (LADP) n'étaient même pas connus des participants et encore moins utilisés par eux à des fins de planification.

Les participants misent largement sur leurs prévisions concernant les deux ou trois premières années de leur plan de main-d'oeuvre. Puis, leur confiance fait brusquement place à l'incertitude et peu d'employeurs estiment que leur planification vaille pour cinq ans ou plus.

Des pénuries de main-d'oeuvre se sont manifestées récemment dans les cinq grands domaines suivants: gestion, technique, comptabilité, informatique et métiers spécialisés. Les employeurs s'attendent non seulement à ce que ces pénuries persistent au cours des années 1980, mais qu'elles s'accentuent et donnent lieu à un accroissement des coûts, à un fléchissement de l'efficacité et à une baisse de la productivité.

Les participants accepteraient, dans une certaine mesure, que les autorités provinciales ou fédérales, ou les deux à la fois, jouent un rôle plus important à certains égards, notamment au chapitre de la détermination des besoins et de la coordination. L'industrie ne veut pas se voir imposer des règles et des règlements stricts, mais souhaite plutôt que les autorités interviennent là où le besoin se fait sentir. Les autorités devraient au besoin offrir une aide technique. On devrait également mettre l'accent sur la planification à l'échelle régionale pour qu'il soit tenu compte des divers marchés du travail au Canada. Les regroupements naturels d'industries, s'il en est, devraient être favorisés par le gouvernement dans le but d'accroître l'efficacité de leur planification.

Après avoir analysé divers aspects de la planification de la main-d'oeuvre selon les secteurs d'activité, les provinces et la taille de chaque entreprise, nous en sommes venus aux conclusions suivantes:

Taille: La période de planification est, plus souvent qu'autrement, proportionnelle à la taille de l'entreprise. Les entreprises de 1 000 employés semblent représenter la taille clé.

Provinces: L'Ontario et l'Alberta comptent des entreprises où la planification de la main-d'oeuvre s'échelonne sur une plus longue période qu'au Québec et en Nouvelle-Écosse. Les entreprises du Québec ont tendance à planifier pour de courtes périodes, tandis que la Nouvelle-Écosse témoigne d'une plus grande variation par secteur.

Secteurs d'activité: Les entreprises du secteur primaire de l'extraction qui utilisent une technologie de pointe font porter leur planification sur une plus longue période, peu importe la province ou la taille de l'entreprise. A remarquer qu'elles sont surreprésentées en Alberta.

Nous avons constaté que le secteur d'activité et la province exercent une influence plus marquée que la taille de l'entreprise sur le nombre d'années médian pour lesquelles les entreprises planifient leurs besoins de main-d'oeuvre. Le secteur d'activité semble exercer une influence plus marquée que la province.

Les techniques informatiques avancées qui ont été utilisées pour cette analyse n'ont cependant pas permis d'établir statistiquement avec exactitude les effets de chacune des variables. Les trois exercent une forte influence et sont interreliées; par exemple, certains des secteurs d'activité dominent dans une province et ont tendance à être assez grands. Les trois variables sont importantes et contribuent à la planification (ou à l'absence de planification) de la main-d'oeuvre.

Enfin, notre rapport propose certaines façons d'améliorer la planification de la main-d'oeuvre au Canada, y compris celles dont avons parlées précédemment.

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EXECUTIVE SUMMARY

This study was undertaken at the request of the Labour Market Task Force of Canada Employment and Immigration to review the "State of the Art" of Manpower Planning in Canada. In order to put Manpower Planning in its proper context it was essential that the study team review overall corporate planning practices. This necessitated differentiating between Strategic and Operations Planning and detailing the practices of Manpower Planning within those two categories.

This study covers 154 companies located in four Canadian Provinces (Alberta, Ontario, Quebec and Nova Scotia). These firms are from 15 different industrial sectors. The study was carried out by a team of interviewers through in-depth interviews with senior corporate executives of the companies.

It was found that 90 of the companies had Strategic Plans. This amounts to 58.4% of the companies studied. Within those Strategic Plans, 59 companies included Strategic Manpower Plans. However, nine of the Strategic Manpower Plans were in time frames that were shorter than the minimum five years that was considered necessary for Strategic Planning. Indeed it was found that most Manpower Planning time frames were shorter than the Strategic Plan time frame. Of the 90 companies, 76.7% (69) had over 1,000 employees as compared to only 58% of the total survey being this large.

Operations Plans were found in 147 of the 154 Companies. One industry (Manufacturing/Machine Equipment) accounts for 5 of the 7 firms who do not have a formal plan. Within this group, 145 firms include a Manpower Plan that is prepared at least one year into the future. These Manpower Plans range up to ten years in the future. The median is 2.2 years. Manpower Planning in these 145 firms is reviewed from a number of different aspects. Criteria for identifying sophisticated versus unsophisticated Manpower Plans were identified. Seventy-six of the 145 companies were shown to have sophisticated Manpower Planning processes based on these criteria.

Manpower plans do not exist for all categories of employees in each company. Of the 145 companies, plans are prepared for employee categories as follows:

Managers	129	companies
Professional/Technical	123	"
Clerical	93	"
Skilled Trades	115	"
Semi and Unskilled	102	"

The planning time horizons also vary in these categories.

Data for Manpower Planning is most often developed from internal corporate sources or from industry or management association sources. Government sources of data showed only very limited use. In many cases, programs such as Canadian Occupational Forecasting Program (COFOR) and Forward Imbalance Listing (FOIL) were not even known to the participants; let alone used as an element of their planning process.

A high confidence level is held by the participants in the first two to three years of their Manpower Plans. During this time period they consider the plans to be relatively valid. After that the confidence level drops dramatically and few feel that their current planning is valid five or more years in the future.

Five major areas of manpower shortages have existed in the recent past. These areas are Managerial, Technical, Accounting, Computer Skills and Skilled Trades. The participants in the survey expect those shortages not only to continue but to increase in the 1980's. There are many effects of the shortages and the report details some of the resultant problems these shortages have caused. The net result is increased costs, less efficiency and less productivity.

There was some receptivity on the part of the participants to an increased role in certain phases for Provincial and/or Federal governments. This was seen as a focused role and also a co-ordinating role. Industry does not want to have stringent rules and regulations imposed on it but rather sees government as assisting where there is a

perceived need. It should provide a voluntary pool of expertise where it can be of assistance. There must be a regional focus on planning to work within the various labour markets in Canada. Natural industry groupings, where they exist, should be assisted by government to increase the effectiveness of their planning.

Analyses have been made of various aspects of Manpower Planning by industry, by province, and by provincial size of each firm in the survey. The results indicate that all three are important variables. Despite the use of advanced computer analysis techniques it was not possible to precisely identify which, if any, of these factors was most dominant.

The original inspection of the data produced the following conclusions:

Size: It is shown that the median number of years planned increases with the size of the company. This is true in Ontario, Alberta and Nova Scotia, although the medians for Quebec are rather flat. The same results are shown by industrial sector. As size increases, extent of Manpower Planning increases. This is the case for all sectors except for Mining and Smelting which has large medians irrespective of size. The key point seems to be at the 1,000 employee size.

Province: In examining provincial differences, we note that Ontario and Alberta have companies with longer Manpower Planning time frames than Quebec and Nova Scotia. The Quebec firms tend to have short time frames. Nova Scotia shows more variation by sector.

Industrial Sector: Manpower Planning trends vary somewhat with industry. Those firms in the primary extraction fields and utilizing high technology have longer planning time frames, regardless of province or size. It should be noted that these firms are over-represented in Alberta.

The three variables have some effect on median number of years of Manpower Planning. We considered the extent to which each affects Manpower Planning by using a "median polish techique".

We found both industry and province to have a larger effect than size on the median number of years for which companies plan their manpower needs. Industry in turn appears to have a larger effect than province.

However, as this analysis was pursued, it was not statistically possible to predict accurately the effect of each of these variables. All three have an effect and all three inter-relate e.g., some industries dominate a province and tend to be large in size. All three variables are important and contribute to Manpower Planning (or the lack of it).

Finally, the report makes a prescription for progress to improve Manpower Planning in Canada. This prescription includes the following:

> Based on enlightened self-interest, the partners in Canada e.g., Federal Government, Provincial Government, Management and Labour must make co-ordinated efforts to improve the Manpower Planning system.
>
> These efforts need to be cognizant of the three variables of Industrial Sector, Province and Size of Firm. It is recommended that the large firms (over 5,000 employees) begin an effort co-ordinated by a small federal group to improve the information base and replace currently ineffective data with improved data for planning purposes.
>
> At the same time, efforts should begin with a regional focus e.g., provincial or regional efforts involving firms with 1,000 or more employees. These should start in the tighter labour markets and gradually be extended to those where there are currently less constraints.
>
> Where natural industry groupings exist, they should be nurtured and assisted to achieve more effective results.
>
> The government role must be a focused and co-ordinating role. It should replace inefficient data, not add to it. The emphasis should be on the industries achieving results among themselves.

Government should not be a forcing agency but begin the process where there is a need already perceived. This is among the large companies in certain labour markets and in certain industrial sectors. These markets should be given assistance and high priority.

I. INTRODUCTION AND TEPMS OF REFERENCE

In October 1980, a study was undertaken at the request of the Labour Market Development Task Force of Canada Employment and Immigration to identify corporate planning practices, with emphasis on manpower planning in the Province of Alberta. This was designed to be a pilot study with a view to extending it on a wider basis in Canada. The concepts and practices with respect to manpower planning were dealt with in some detail. That report, entitled "Manpower Planning in Alberta", was presented to the Task Force in December 1980.

At the request of the Task Force the study was extended to the Provinces of Ontario, Quebec and Nova Scotia. The particular purposes of the study were to be as follows:

"In general, to provide a descriptive understanding of the manpower planning processes of a representative sample of corporations in the Provinces of Ontario, Quebec, Nova Scotia and Alberta.

The study was to include the following elements:

- the firms perceptions of the evolution of their industries in the 1980's (Technological change, international competitiveness and so forth);
- the corporate planning process; integrating Strategic (nature of business) capital budgets and operating budgets as it exists for firms in the sample;
- how and if the foregoing corporate plans are translated into manpower plans;
- the detail of manpower plans and how it varies with skill categories (Management, Professional/Technical, clerical, skilled trades and semi and unskilled manpower categories);
- the perceived accuracy of plans and how this accuracy varies with the time periods;
- the variation in planning by region, industrial sector and size of firms;

- the sources of data now utilized by corporations in forecasting labour demand and supply information;

- the evidence of contingency planning with respect to manpower planning;

- the perceptions of the roles of government in the planning process."

Some additional information was sought beyond the original Alberta study. This additional information is shown as Appendix I and was mailed to the Alberta companies who, in the main responded. Those responses were integrated with the overall study.

The expanded study was undertaken by a team of researchers who followed a general interviewing approach with senior executives of the representative companies. This general approach is shown as Appendix II. During January and February 1981, the interviewers met with representatives of 129 companies in Ontario, Quebec and Nova Scotia. The details of these interviews were reported on a corporate data sheet that was consistent from interviewer to interviewer. This information was then compiled and a computer analysis format developed to relate the many variables. Cooperation of the employers was excellent. The interviews were open and provided the valuable data required. Combined with the Alberta study the total usable data covers 154 corporations in the four provinces.

The interview teams emphasized that all data provided would be handled in a confidential manner and the participating individuals and firms would not be identified in any way when the data were summarized and reported. The compilation of the responses has been done in such a manner that the data is totally confidential. The new data support many of the conclusions reached in the Alberta study. However, the larger sample and additional industrial sectors has brought forth new conclusions. With the breadth of this sample it has been possible to test the questions of industrial sectors, (15 were identified); the questions of province and provincial impact on planning; and the impact of size of the firms involved on planning.

The following report analyzes the overall responses concerning Strategic Planning, Operations Planning and Manpower Planning. It then presents a detailed analysis of the data under the three variables of Industrial Sector, Province and Provincial Size. As a result of this analysis prescriptions have been made as to possible improvements of manpower planning in Canada.

The amount of data collected is massive. It required the analysis of many variables to determine their significance. The most significant variables do occur under the three conditions of Sector, Size and Province. Others, while interesting are not as significant and do not lead to effective prescriptions for manpower planning in Canada.

II. DESCRIPTION OF PARTICIPATING COMPANIES

The Task Force established the following criteria for selecting companies:

1. Roughly proportional to industrial sectors in the province. The determination of these proportions to be based on employment in each industry.

2. By size of firms within the industry to reflect a percentage of the industry roughly equal to the above. There will be a deliberate attempt to stratify the sample according to the size of firm. The sampling will be based on employment breakdown by size (i.e., 90% of employment in large firms 90% of interviews in large firms).

3. Proportional to Training dollars spent by Canada Employment Immigration Commission will be an additional criterion for choice.

4. Geographic spread will be a further consideration if it does not occur as a result of previous criteria.

The Task Force subsequently selected 151 companies and sent letters requesting their cooperation in the study. One hundred and twenty-nine firms were eventually interviewed. The industrial sectors, number of firms in each province and the provincial size of firms in each sector appear in Tables 1 and 2.

There was a good sampling of the industrial sectors identified as Automotive, Mining, Food, Retail, Oil, Chemical and Petrochemical and Electronics. In addition, a representative sample was taken in the Manufacturing/Machine Equipment, Forest Products, Manufacturing/Aerospace Equipment, Construction, Transport and Communication, Textiles, Service, Finance/Insurance/Real Estate and Fishing sectors respectively.

A. Energy and Petrochemicals

This sector has the largest sample, containing 12.3% of the total. It is concentrated in Alberta and Ontario, eight and seven firms, respectively; and a smaller sample in Quebec and

TABLE 1. PARTICIPATING COMPANIES/SECTOR/PROVINCIAL SIZE

Industrial Sector	Not Reported		To 100		101-500		501-1000		1001-5000		5000+		Total	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Energy/ Petrochem.	-	-	-	-	2	5.6	1	5.6	12	20.3	4	12.9	19	12.3
Mnf. Machine Equipment	-	-	4	50.0	9	25.0	-	-	4	6.8	-	-	17	11.0
Electronics	1	50.0	-	-	2	5.6	3	16.7	5	8.5	1	3.2	12	7.8
Mining/ Smelting	-	-	2	25.0	1	2.8	-	-	7	11.9	2	6.5	12	7.8
Forest Products	-	-	-	-	3	8.3	1	5.6	4	6.8	4	12.9	12	7.8
Trade	-	-	-	-	-	-	2	11.1	4	6.8	5	16.1	11	7.1
Mnf./ Automotive	-	-	-	-	-	-	4	22.1	6	10.2	1	3.2	11	7.1
Mnf./ Aerospace	-	-	-	-	3	8.3	2	11.1	2	3.4	3	9.7	10	6.5
Construction	1	50.0	-	-	7	19.4	1	5.6	1	1.7	-	-	10	6.5
Transport/ Communic.	-	-	1	12.5	1	2.8	1	5.6	3	5.1	3	9.7	9	5.8
Textiles	-	-	1	12.5	3	8.3	2	11.1	2	3.4	-	-	8	5.2
Service	-	-	-	-	-	-	-	-	4	6.8	1	3.2	5	3.2
Finance, Insur./ Real Estate	-	-	-	-	-	-	1	5.6	1	1.7	3	9.7	5	3.2
Fishing	-	-	-	-	2	5.6	-	-	2	3.4	-	-	4	2.6
Other	-	-	-	-	3	8.3	-	-	2	3.4	4	12.9	9	5.8
Total	2	100.0	8	100.0	36	100.0	18	100.0	59	100.0	31	100.0	154	100.0

TABLE 2. PARTICIPATING COMPANIES/SECTOR/PROVINCE

Industrial Sector	Alberta		Ontario		Quebec		Nova Scotia		Total	
	#	%	#	%	#	%	#	%	#	%
Energy/ Petrochem.	8	32.0	7	12.3	3	6.7	1	3.7	19	12.3
Mnf. Machine Equipment	1	4.0	8	14.0	3	6.7	5	18.6	17	11.0
Electronics	-	-	7	12.3	4	8.9	1	3.7	12	7.8
Mining/ Smelting	4	16.0	5	8.8	2	4.4	1	3.7	12	7.8
Forest Products	-	-	4	7.0	4	8.9	4	14.8	12	7.8
Trade	1	4.0	5	8.8	3	6.7	2	7.4	11	7.1
Mnf./ Automotive	-	-	6	10.5	3	6.7	2	7.4	11	7.1
Mnf./ Aerospace	-	-	6	10.5	3	6.7	1	3.7	10	6.5
Construction	4	16.0	4	7.0	1	2.2	1	3.7	10	6.5
Transport/ Communic.	1	4.0	-	-	6	13.3	2	7.4	9	5.8
Textiles	-	-	-	-	5	11.1	3	11.1	8	5.2
Service	-	-	2	3.5	2	4.4	1	3.7	5	3.2
Finance, Insur./ Real Estate	1	4.0	1	1.8	3	6.7	-	-	5	3.2
Fishing	-	-	-	-	1	2.2	3	11.1	4	2.6
Other	5	20.0	2	3.5	2	4.4	-	-	9	5.8
Total	25	100.0	57	100.0	45	100.0	27	100.0	154	100.0

Nova Scotia with three and one firms, respectively. The companies are generally large. Sixteen of the 19 surveyed have more than 1,000 employees. Of the firms smaller than 1,000, two are in Alberta and one is in Quebec. In this group are five integrated oil companies, three gas and oil exploration and production companies, four that generate and distribute hydro electric power, two that sell and distribute natural gas, three that are involved in other kinds of resource development and two in petrochemical manufacturing.

B. Manufacturing/Machine Equipment

This sector contains 11% of the total sample. Eight of the 17 firms are in Ontario, five in Nova Scotia, three in Quebec and and one in Alberta. Thirteen of the 17 have less than 500 employees and at least seven of these are family-owned businesses. In this group are companies that manufacture a wide variety of products including such things as tools, dyes, gears, fixtures, batteries, fishing equipment, rails, axles, rubber products, cables, fabricated steel products, etc. This sector relies heavily on the ability of major manufacturing firms to get major contracts and subcontract part of their business.

C. Electronics

There are 12 companies in this sector. Products range from such common items as radio and television to exotic products such as flight simulators and submarine detectors. Also produced are typewriters, word processors, computer hardware and software, circuit boards, voice equipment, postal service equipment, etc. One company employs more than 5,000, five fall between 1,000 and 5,000, and five are smaller than 1,000. Ontario has the greatest representation with seven, followed by Quebec with four and Nova Scotia with one. Alberta is not represented.

D. Mining and Smelting

Twelve companies (7.9%) in this sector were surveyed. They vary in size from 45 to almost 14,000 employees. Two are greater than 5,000, seven are between 1,000 and 5,000 and three are less than 1,000. Products produced by these companies are iron, aluminum, coal, copper, gold, uranium and molybdenum. All provinces are represented in the survey. Five are in Ontario, four in Alberta, two in Quebec and one in Nova Scotia.

E. Forest Products

Twelve companies (7.9%) were surveyed; four of these employ more than 5,000; four are between 1,000 and 5,000 and four are less than 1,000. The sample is spread equally in Ontario, Quebec and Nova Scotia, each with four. None were surveyed in Alberta. Firms in this sector produce hardboard products, plywood and other soft lumber products and an assortment of pulp and paper products including newsprint and various tissue papers.

F. Trade

The Trade sector included a variety of firms and represented 7.1% of the survey. In this group are retail and wholesale merchandising companies, dairy processing, fruit and vegetable processing, retail and wholesale groceterias, drug stores, auto centres and retail and wholesale hardware stores.

Of the eleven companies surveyed, five are located in Ontario, three in Quebec, two in Nova Scotia and one in Alberta. Five employ more than 5,000. Four are between 1,000 and 5,000 and two are less than 1,000 employees.

G. Manufacturing/Automotive Equipment

Eleven companies (7.1%) of the total survey are in this sector. One company is larger than 5,000, six are between 1,000 and 5,000 and four are smaller than 1,000. Ontario has the highest representation with six, Quebec has three and Nova Scotia two. There is no representation from Alberta in the survey.

The main products from this sector are trucks, trailers, railway cars, chassis components, engines, axles and tires.

H. Manufacturing/Aerospace

This sector manufactures aircraft, aircraft wing and tail assemblies, landing gears, hydraulic equipment, helicopter gear boxes and other aircraft parts as well as satellite parts, radar and sonar. Ten companies were surveyed, representing 6.5% of the total. Three firms employ more than 5,000, two are between 1,000 and 5,000 and five are 1,000 or less. Six companies are located in Ontario, three in Quebec and one in Nova Scotia. Alberta is not represented.

I. Construction

Ten companies, representing 6.5% of the total survey, are in the sample. There are four each in Alberta and Ontario, and one each in Quebec and Nova Scotia. One firm employs between 1,000 and 5,000, one is between 500 and 1,000, seven are between 101 and 500 and one did not report on a provincial size basis. Construction is significant in that firms in this sector often employ a large number of managerial and professional employees and sub-contract for skilled and semi and unskilled workers. The total numbers, therefore, are not as indicative as the numbers in other sectors. These companies are engaged in such construction activities as civil engineering projects (large and small), underground construction, residential and commercial building and land development, cement products, pre-cast concrete products, brick products and the like.

J. Transportation and Communication

Nine companies, which account for 5.8% of the survey are in this sector. Six companies are in Quebec, one is in Alberta and two are in Nova Scotia. Three firms employ less than 1,000, three between 1,000 to 5,000 and three over 5,000. Telecommunications, radio, air transportation, rail transportation and newspaper printing are included in this sector.

K. Textiles

Eight companies, representing 5.2% of the survey are in this sector. Five of the firms are in Quebec and three are in Nova Scotia. Six of the firms employ less than 1,000 and two employ between 1,000 and 5,000.

Companies in this group manufacture fabric for clothing, carpets, rugs and carpet backings, tarpaulins, etc.

L. Service

Five companies in this sector were surveyed. This represents 3.2% of the total. All firms employ more than 1,000 employees and one is greater than 5,000. There are two each in Quebec and Ontario and one in Nova Scotia. Three hotels were surveyed together with one fast food outlet and one hospital.

M. Finance/Insurance/Real Estate

Five companies, (3.2%) in this sector, were surveyed. Three are in Quebec and there is one each in Ontario and Alberta. Three of the firms employ more than 5,000, one is between 1,000 and 5,000 and one is under 1,000.

The companies are involved in banking, insurance and real estate development and management.

N. Fishing

The smallest sample was in the fishing industry. Four companies representing 2.6% of the total were interviewed. Two of the firms employ over 4,000 including seasonal employees and two employ less than 500. Three of the firms are in Nova Scotia and one is in Quebec. The business of this sector is to catch, process and sell ocean products.

O. Other

The "Other" sector includes industries surveyed with less than four samples. There are nine firms in this group, representing 5.8% of the total.

The organizations are involved in cargo transportation, municipal administration, heavy equipment sales and service, grain handling, steel production, and furniture manufacturing.

Four of the organizations employ more than 5,000, two are between 1,000 and 5,000 and three are less than 1,000.

Five of the sample are in Alberta and there are two each in Ontario and Quebec.

Later in the analysis, the data will be reviewed by Industrial Sector, Size and Province. Certain aspects of the sample will become important. For instance, some sectors such as Energy/Petrochemical are dominated by companies with over 1,000 employees. e.g., 16 of 19 companies The sectors so dominated are:

Energy/Petrochemical	(16 of 19)
Mining/Smelting	(9 of 12)
Forest Products	(8 of 12)
Trade	(9 of 11)
Manufacturing/Automotive	(8 of 11)
Transportation/Communications	(6 of 9)
Service	(5 of 5)
Finance/Insurance/Real Estate	(4 of 5)
Other	(6 of 9)

Certain others are characterized by a predominance of companies under 1,000 employees. These are:

Manufacturing/Machine Equipment	(13 of 17)
Construction	(9 of 10)
Textiles	(6 of 8)

The rest of the industries are relatively balanced in the sample between, under and over 1,000 employees. These are:

Electronics	(6 under, 5 over)
Manufacturing/Aerospace	(5 under, 5 over)
Fishing	(2 under, 2 over)

Similarly looking at Table 2 certain industries tend to be in certain provinces:

Energy/Petrochemical	8 in Alberta and 7 in Ontario
Manufacturing/Machine Equipment	8 in Ontario and 4 in Nova Scotia

Electronics	7 in Ontario
Mining/Smelting	5 in Ontario and 4 in Alberta
Forest Products	NIL in Alberta and 4 in each of the other provinces
Manufacturing/Automotive	6 in Ontario
Manufacturing/Aerospace	6 in Ontario
Construction	4 in Ontario and 4 in Alberta
Transportation/Communications	6 in Quebec
Textiles	5 in Quebec, 3 in Nova Scotia, NIL elsewhere
Finance/Insurance/Real Estate	3 in Quebec
Fishing	3 in Nova Scotia
Other	5 in Alberta

Consequently the data in the study shows certain effects can come from the sample. For instance, the Energy/Petrochemical Sector is dominated by large companies and these are mainly located in Alberta and Ontario. As a simple analysis Table 3 was prepared. It shows the dominant size of the industrial sectors and the province in which that sector is largely found. The province(s) of domination were chosen to represent 50 percent of the surveyed companies in the industry or if that industrial sector represented more than 10 percent of the sample in that province.

From this table, we can draw some preliminary observations. Two industries (Manufacturing/Machine Equipment and Construction) are dominated by smaller companies. However, as was seen in the industry descriptions, Construction is an anomaly in terms of employment and should be classified as large. Four industries (Electronics, Manufacturing/Aerospace, Textiles and Fishing) are balanced in size of

TABLE 3. RUDIMENTARY DOMINANCE FACTOR ANALYSIS

Industrial Sector	Size		Province			
	Under 1,000	Over 1,000	Alta.	Ont.	Que.	N.S.
Energy/ Petrochem.		X	X	X		
Mnf. Machine Equipment	X			X		X
Electronics				X		
Mining/ Smelting		X	X	X		
Forest Products		X		X	X	X
Trade		X		X	X	
Mnf./ Automotive		X		X		
Mnf./ Aerospace				X		
Construction	X		X	X		
Transport/ Communic.		X			X	
Textiles					X	X
Service		X		X	X	
Finance, Insur./ Real Estate		X			X	
Fishing						X
Other		X	X			

companies. All other industrial sectors are dominated by large (over 1,000 employees) companies.

The results in Alberta then will be dominated by four industries. All of these industries (given our Construction exception) are dominated by large companies. If those industries have a high incidence of planning, then it is expected Alberta will as well. Similar observations can be made about each of the provinces.

Nova Scotia will be affected by four industries with only one of these dominated by large size. Two are balanced and one is small.

Quebec is affected by six industries of which five have large companies and one balanced between small and large.

Ontario has the widest range of industries (10). Seven of these are dominated by large companies, one by small and two are balanced.

The location of a firm's Corporate Headquarters is used in this study as a rough determinant of how much provincial autonomy exists in the participating companies. For example, a company interviewed in Halifax, but with corporate headquarters in Montreal, would be assumed to have less provincial autonomy than it would if the Corporate offices were located in Halifax. The location of the Chief Executive Officer was deemed to be the location of the Corporate Headquarters. (See Table 4).

TABLE 4. PARTICIPATING COMPANIES/PROVINCE OF INTERVIEW/LOCATION OF CORPORATE HEADQUARTERS

	Alta.	Ont.	Que.	N.S.	Other	Total
Alberta	20	3	1	-	1	25
Ontario	-	49	1	-	7	57
Quebec	-	-	45	-	-	45
Nova Scotia	-	3	-	19	5	27

It is recognized that some of the participating companies are subsidiaries of other organizations. This table shows the location of the Chief Executive of the company surveyed and not the parent company. It is only a guide but does indicate executive action tends to be in the province in which the interviews were undertaken. (In many cases the interview was with the CEO or a member of his immediate team).

III. CORPORATE PLANNING - GENERAL

The concepts and methods of Corporate Planning vary widely. Some organizations make clear distinctions between strategic and operations planning.

Not all decisions that managers must make are equally important. Decisions involving strategic variables - those that determine a company's scope, goals, and resource allocation - are crucial to the survival and development of the enterprise. They relate the organization to its external environment in contrast with decisions involving the operating variables, which relate to the organization's internal environment.

There is no magic formula for determing which decisions are strategic and which are operating, but the concept of the dichotomy is useful to management. Higher-level managers should spend a proportionately greater amount of their time on strategic decisions, and lower-level managers should concentrate on operational matters. Of course what may appear to be operational to a higher-level manager may be strategic to the lower-level manager. Here the enterprise is viewed as a whole.

The separation of decision variables into two classes has been approached from different directions by different management schools. Anthony,[1] who is concerned with the accountability perspective and particularly the planning and control functions, distinguishes between what he calls strategic planning and two kinds of control: management and operation. His strategic planning and management control, taken together, are roughly analogous to what other authors call the strategic variables in decision making. Also, Anthony's operational control concept is roughly analogous to what are often called the operating variables. For example, he illustrates strategic planning activities by such tasks as choosing objectives and setting policies, and as examples of operational control he lists controlling inventory and implementing policy decisions once they are formulated.

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1. Robert N. Anthony, "Planning and Control Systems: A Framework for Analysis" (Cambridge, Mass.: Harvard University Press, 1965).

Ansoff,[2] on the other hand, divides problems and decisions into three classes that he calls strategic, administrative, and operating. He gives the setting of objectives and goals as an example of a strategic decision and the monitoring and control of operating systems as examples of the operating class.

Arthur Smithies[3] tends to make the strategic-operating distinction along effectiveness versus efficiency lines. He implies that the strategic variables are concerned with how effectively objectives and goals are accomplished and operating variables with how efficiently resources are utilized in carrying out the programs for achieving the goals.

Determining what it is the organization wants to do - its goals and objectives - is the business of top management. Goal setting is certainly strategic because virtually all key problems the organization must inevitably face (and therefore all decisions that it must inevitably make) will flow from established objectives and goals. In no sense can the setting of company's goals and objectives be considered routine, operational, or administrative.

On the other hand, once an organization has established its goals and objectives and has selected particular courses of actions and specific programs and activities for achieving those objectives, a host of problems or functions or activities that are not strategic but rather operational come into play. For example, the detailed scheduling of allocated resources among functions, departments, and activities is an operational consideration.

The planning process in the firms surveyed has a wide range of sophistication. Large companies tend to be at the upper level of sophistication in planning. They are likely to have a department or individual in charge of the total planning process and a department or individual responsible for Manpower Planning. Companies at lower levels of sophistication tend to employ less than 1,000 people. Here the President would likely share responsibility with other members of the management team, but it would not be a specific assignment.

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2. H. Igor Ansoff, "Corporate Strategy: An Analytic Approach to Business Policy for Growth and Expansion" (New York: McGraw-Hill Book Company, 1965).

3. Arthur Smithies, "Government Decision-Making and the Theory of Choice", "Paper PZ960", and "A Conceptual Framework for the Program Budget", RM 4 271-RC (Santa Monica, Cal.: RAND Corporation, 1965).

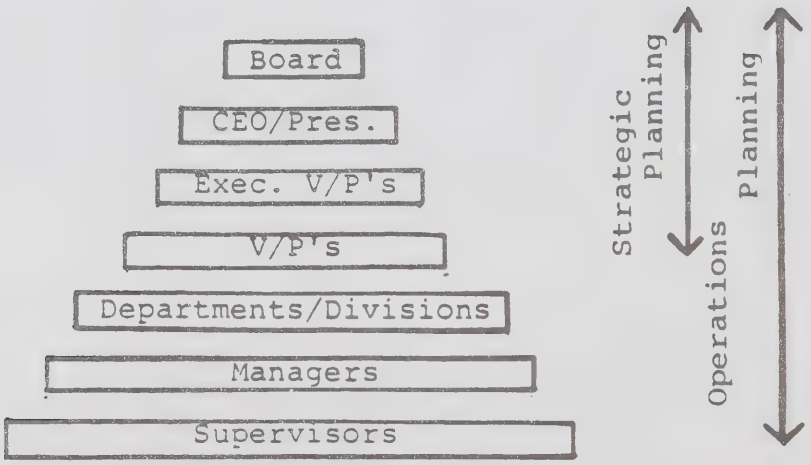
In a fairly typical Strategic Planning situation in a larger firm (where strategic planning is more likely to take place), the President would ask the Vice-President of Corporate Planning to set the process in motion. Guidelines and deadlines for preparation would be sent to the other Vice-Presidents. Each Vice-President would develop his plan. Depending on the organization, he might seek input from one or two levels below. The plan would then be reviewed by the Corporate Planning Department. Eventually the Corporate Planning Department would bring all the plans together where they would be reviewed by the President/CEO, Executive V/P's and all V/P's. The plans would then be presented to the Board of Directors for approval.

One of the most significant aspects of Strategic Planning is its confidentiality. Thus it is very selective with only high-level involvement. For this survey, strategic planning was defined as those strategies dealing with the development of the business five or more years into the future; essentially a process of setting long-term goals and objectives and a strategy to attain them.

The Operations Planning process is much the same as Strategic Planning from an initiation and approval standpoint but because it requires more detail, it tends to involve personnel at much lower organization levels. In this survey, Operations Planning was defined as being of a more detailed and specific nature, usually dealing with short or medium term time frames. In all cases this is tied to a formal budget. In some cases the formal budget was the operating plan.

Figure 1 illustrates the more common levels of involvement for both Strategic and Operations Planning.

Figure 1



Illustrative of this are the following two tables (Tables 5 and 6) These show the hierarchical levels in the survey organizations that initiate and approve Strategic and Operations Planning.

Table 5 shows the organization level for initiation and approval of Strategic Plans.

TABLE 5 STRATEGIC PLANNING/INITIATION/APPROVAL

	Strategic Planning	
	Initiation	Approval
Board of Directors	17	57
CEO/President	32	21
V/Ps Office	12	2
Other	29	10
Total	90	90

Table 6 shows the level for initiation and approval of the Operations Planning.

TABLE 6 OPERATIONS PLANNING/INITIATION/APPROVAL

	Operations Planning	
	Initiated By	Approved By
Board of Directors	6	66
CEO/President	55	52
V/Ps Office	40	14
Other	46	15
Total	147	147

These tables show the importance placed upon planning, both Strategic and Operations, by the Senior Executive and Board of Directors. Manpower Planning, which will be examined in much detail later in this report, is generally an integral part of Operations Planning. Therefore an assumption can be made that Manpower Planning usually has the benefit of the junior level organization involvement illustrated in Figure 1, and senior level involvement and commitment illustrated in Table 6.

IV. STRATEGIC PLANNING

The Strategic Planning process was examined at each interview.

Ninety of the 154 firms in the survey are involved in strategic planning. A breakdown by province and sector is shown in Table 7. This table shows the highest percentage of strategic planning takes place in Alberta where 88% of the firms are involved in the process. Quebec follows at 71.1%, Ontario at 49.1% and Nova Scotia at 29.6%.

In the individual sectors, Energy and Petrochemical is highest at 94.7%, followed by Service and Finance/Insurance/Real Estate, respectively, at 80%. Strategic Planning has the lowest level of participation in the Textiles industry at 12.5% of the firms surveyed.

As noted previously, the Strategic Planning process is generally at a high level and of a confidential nature.

The high level of strategic planning among the companies surveyed in Alberta and Quebec appears to come as a result of the types of industries that were surveyed in those provinces as opposed to the industries in other provinces.

In Alberta for instance, the companies surveyed came from a limited selection of industries (e.g., seven of the 15 sectors). Of the seven industries all except Construction are characterized as having a high level of Strategic Planning. Ontario, which was the lowest in percentage of companies doing Strategic Planning, was characterized by having a high representation of those industries in which Strategic Planning does not appear to take place to the same extent as other industries. A large number of companies in Ontario were in the Manufacturing/Machine Equipment, Electronics and Construction sectors, respectively.

Similarly, in the other provinces it appears to be the mix of industries in the survey as opposed to a particular provincial difference that accounts for the differences in Strategic Planning.

Industries such as Energy/Petrochemical, Mining/Smelting, Forest Products, Trade and Transport and Communications tend to have high capital expenses and long lead times in their development. These industries are the ones that tend to do the most corporate Strategic Planning.

TABLE 7. STRATEGIC PLANNING/SECTOR/PROVINCE

Industrial Sector	Alberta		Ontario		Quebec		Nova Scotia		Totals		Total Surveyed
	#	of (Total)	#	of (Total	#	of (Total)	#	of (Total)	#	%	#
Energy/ Petrochem	7	(8)	7	(7)	3	(4)	1	(1)	18	94.7	19
Mnf. Machine Equipment	-	(1)	3	(8)	2	(3)	-	(5)	5	29.4	17
Electronics	-	-	2	(7)	3	(4)	-	(1)	5	41.7	12
Mining/ Smelting	4	(4)	1	(5)	2	(2)	1	(1)	8	66.7	12
Forest Products	-	-	2	(4)	4	(4)	1	(4)	7	58.3	12
Trade	1	(1)	4	(5)	3	(3)	-	(2)	8	72.7	11
Mnf./ Automotive	-	-	-	(6)	3	(3)	1	(2)	4	36.4	11
Mnf./ Aerospace	-	-	3	(6)	3	(3)	-	(1)	6	60.0	10
Construction	3	(4)	1	(4)	-	(1)	1	(1)	5	50.0	10
Transport/ Communic.	1	(1)	-	-	5	(6)	1	(2)	7	77.7	9
Textiles	-	-	-	-	1	(5)	-	(3)	1	12.5	8
Service	-	-	2	(2)	1	(2)	1	(1)	4	80.0	5
Finance, Insur./ Real Estate	1	(1)	1	(1)	2	(3)	-	-	4	80.0	5
Fishing	-	-	-	-	-	(1)	1	(3)	1	25.0	4
Other	5	(5)	2	(2)	-	(2)	-	-	7	77.7	9
Total	22		28		32		8		90		
Total Surveyed	25	88.0%	57	49.1%	45	71.1%	27	29.6%	154	58.4%	

On the other hand, industries such as the Manufacturing/ Machine Equipment are very reliant on the decisions of others. This makes it difficult for them to plan very far into the future. This is particularly notable in Nova Scotia. Here not only are they reliant on the decisions from others in their market place, but they also tend to be long distances from that market place.

The Electronics industry on the other hand is characterized by rapid change. That rapid change creates difficulty for long term Strategic Planning.

The differences in Table 7 seem to be explained by the differences in industry as opposed to the differing locations within Canada.

It could be concluded that the industry differences are more significant than the location of the particular company as a determinant of whether it does Strategic Planning.

As a part of the survey the time frames for Strategic Planning for each participant were examined. Table 8 shows these time frames for each industry.

The table shows that 46 of the 90 companies (over 50%) do Strategic Planning in a 5-year time frame. By the time a 10-year time frame is reached, over 90% of the companies doing Strategic Planning are within that time frame. Seven companies in the survey do Strategic Planning for periods of greater than 10 years and up to 20 years.

A look at time horizons by the type of industry is quite revealing. Only three sectors plan for greater than 10 years. Included are four companies in the Energy/Petrochemical sector, one in Transportation/Communication and two in "Other". Except for these seven companies that plan for more than 10 years, all sectors group mainly at either 5 years or 10 years. Another exception is a Construction firm, planning for seven years.

There are no remarkable differences by industry among those companies who have Strategic Plans in terms of their time frames. What, of course, is interesting is that some industries have such a low number of companies doing Strategic Plans. This ranges from 18 of 19 of the Energy/ Petrochemical companies to industries such as Textiles where only one of eight companies surveyed does Strategic Planning. However in that firm the Strategic Plan is for 10 years. Other industries that are noticeable for relatively low level Strategic Planning include the following:

TABLE 8. STRATEGIC PLANNING/SECTOR/TIME FRAMES

Industrial Sector	Not Reported		5 Yrs.		7 Yrs.		10 Yrs.		15 Yrs.		20 Yrs.		Ind. Total		Total Surveyed	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Energy/ Petrochem.	1	5.6	7	38.9	-	-	6	33.3	1	5.6	3	16.7	18	20.0	19	12.3
Mnf. Machine Equipment	-	-	3	60.0	-	-	2	40.0	-	-	-	-	5	5.6	17	11.0
Electronics	-	-	5	100.0	-	-	-	-	-	-	-	-	5	5.6	12	7.8
Mining/ Smelting	-	-	1	12.5	-	-	7	87.5	-	-	-	-	8	8.9	12	7.8
Forest Products	-	-	5	71.4	-	-	2	28.6	-	-	-	-	7	7.8	12	7.8
Trade	-	-	5	62.5	-	-	3	37.5	-	-	-	-	8	8.9	11	7.1
Mnf./ Automotive	-	-	2	50.0	-	-	2	50.0	-	-	-	-	4	4.4	11	7.1
Mnf./ Aerospace	-	-	4	66.7	-	-	2	33.3	-	-	-	-	6	6.7	10	6.5
Construction	-	-	3	60.0	1	20.0	1	20.0	-	-	-	-	5	5.6	10	6.5
Transport/ Communic.	-	-	2	28.6	-	-	4	57.4	-	-	1	14.3	7	7.8	9	5.8
Textiles	-	-	-	-	-	-	1	100.0	-	-	-	-	1	1.1	8	5.2
Service	1	25.0	2	50.0	-	-	1	25.0	-	-	-	-	4	4.4	5	3.2
Finance, Insur/ Real Estate	-	-	3	75.0	-	-	1	25.0	-	-	-	-	4	4.4	5	3.2
Fishing	-	-	1	100.0	-	-	-	-	-	-	-	-	1	1.1	4	2.6
Other	-	-	3	42.9	-	-	2	28.6	1	14.3	1	14.3	7	7.8	9	5.8
Total	2	2.2	46	51.1	1	1.1	34	37.8	2	2.2	5	5.6	90	100.0	154	100.0

Manufacturing/Machine Equipment	(5 of 17)
Electronics	(5 of 12)
Manufacturing/Automotive	(4 of 11)
Construction	(5 of 10)
Fishing	(1 of 4)

In all these cases less than 50% of the companies involved in the industry actually do Strategic Planning for 5 or more years. However, it does appear that once Strategic Planning is undertaken, the cluster of periods is around either a 5- or a 10-year plan. With the exception of the Energy/Petrochemical industry there are no significant differences in the time frames of the planning.

Within the planning process are various elements. These include Financial Plans, Capital Plans, Marketing Plans, Research and Development and Manpower. The survey questioned the time frame of each of these elements within the overall plan.

The time frames for the elements of the Strategic Plan were then compared in relation to the overall planning time frame. Table 9 illustrates those time frames.

TABLE 9. STRATEGIC PLANNING/ELEMENTS/TIME FRAMES

	Element not Planned		1 Yr.		2 Yrs.		3 Yrs.		5 Yrs.		7 Yrs.		10 Yrs.		15 Yrs.		20 Yrs.		Mean Time
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	Yrs.
Overall Plan	-		-		-		-		46		1		34		2		5		7.9
Financial Plan	7		-		-		-		43		1		36		1		2		7.1
Capital Budget	-		-		2		1		41		1		34		2		3		7.2
Marketing Plan	8		-		1		2		44		-		30		1		4		6.9
Research & Development	45		-		-		-		24		-		17		1		3		4.1
Manpower	31		3		2		4		31		1		16		1		1		4.2

The mean number of years for the overall planning time frame is 7.9. The elements of that time frame, however, vary considerably. The financial plan and capital budget tend to be close to the mean time frame for the planning period. The marketing plan dropped somewhat but not significantly behind that. Most significant is research and development where a mean number of 4.1 years is distorted because only 50% of the 90 companies have research and development components in their plan.

The Manpower plan in relation to Strategic Planning falls into a similar category. Thirty-one of the 90 companies do not have a Manpower Plan as part of their Corporate Strategic Plan. A further nine have a Manpower Plan but it is in a time frame of less than five years. The balance of the companies have a Strategic Manpower Plan, again clustered around the five year time period (31 companies) and ten years (16 companies). There are two companies planning for more than 10 years; one time frame is 15, the other is 20. The mean time frame for Manpower Planning is 4.2 years. The indication is that while the Corporate Strategic Plan may be for an extended period the Manpower Plan tends to be for a shorter time frame.

The provincial size of the 90 companies doing Strategic Planning was compared to the 64 companies not doing Strategic Planning. Table 10 shows this comparison.

TABLE 10. STRATEGIC PLANNING/PROVINCIAL SIZE

	No		Yes		Total	
	#	%	#	%	#	%
Not Reported	1	50.0	1	50.0	2	1.3
To 100	6	75.0	2	25.0	8	5.2
101 - 500	25	69.4	11	30.6	36	23.4
501 - 1000	11	61.1	7	38.9	18	11.7
1001 - 5000	17	28.8	42	71.2	59	38.3
5001 -	4	12.9	27	87.1	31	20.1
Total	64	41.6	90	58.4	154	100.0

This table illustrates a remarkable change in the percentage of companies doing Strategic Planning who have 1,000 or more employees on a provincial basis. There are 90 such companies in the survey and 69 of those are doing Strategic Planning. In the group employing over 5,000, 27 out of 31 are doing Strategic Planning.

In the groups below 1,000 there are not significant differences but the percentage of firms doing Strategic Planning increases as size increases. For example, in the group below 100 employees, only 25% do Strategic Planning. This increases to 30.6% in the 101 to 500 group and to 38.9% in the 501 to 1,000 group. The significance here is that at each level the percentage of companies doing planning of a strategic nature is increasing. However, the significant jump at the 1,000 level appears critical.

Because of the dramatic nature of the size comparisons in Strategic Planning it was decided to review the data by province to determine if size was equally a factor in Strategic Planning by the numbers employed in the province. Table 11 shows Strategic Planning by Province and Provincial Size.

TABLE 11. STRATEGIC PLANNING/PROVINCE/PROVINCIAL SIZE

	Not Reported		To 100		101-500		501-1000		1001-5000		5000+ -		Total	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Alberta	-	-	2	9.1	5	22.7	2	9.1	11	50.0	2	9.1	22	24.4
Ontario	1	3.6	-	-	2	7.1	-	-	12	42.9	13	46.4	28	31.1
Quebec	-	-	-	-	2	6.3	5	15.6	13	40.6	12	37.5	32	35.6
Nova Scotia	-	-	-	-	2	25.0	-	-	6	75.0	-	-	8	8.9
Total	1	1.1	2	2.2	11	12.2	7	7.8	42	46.7	27	30.0	90	100.0

This table also indicates a heavy concentration of Strategic Planning in those firms with 1,000 or more employees in the province. This ranges from a low of 59.1% of Alberta companies doing Strategic Planning to a high of 78.1% of the companies in Quebec. It is significant that of all the companies in the survey the larger ones are doing the most Strategic Planning.

The size factor in Strategic Planning was then tested in the various sectors. Table 12 shows the result.

This breakdown by Industrial Sector and Provincial Size, again appears significant. In every sector the companies of 1,000 or over are by far those doing the most Strategic Planning. It even explains some previous anomalies. In Fishing and Textiles, for example, there is one company in each sector with more than 1,000 employees. In both cases those companies are doing Strategic Planning. However, there does appear to be one unexplained anomaly. In the Construction industry, of five companies doing the planning, four are in the 100 to 500 bracket. However, it must be kept in mind that the Construction industry has a peculiar form. A major Construction firm including the largest in the country will have relatively few of its own employees. It will rely to a very large extent on sub-contractors and in most cases these will be many times the numbers of employees that are directly employed by that Construction firm.

It must be reiterated that in terms of the total number of companies doing Strategic Planning (90), 76.7% of those companies employ 1,000 or more employees within that province. Of the total companies in the survey, 58% (90) were over 1,000 employees.

TABLE 12. STRATEGIC PLANNING/SECTOR/PROVINCIAL SIZE

Industrial Sector	Not Reported		To 100		101-500		501-1000		1001-5000		5000+		Total	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Energy/ Petrochem.	-	-	-	-	1	5.6	1	5.6	12	66.7	4	22.2	18	20.0
Mnf. Machine Equipment		-	-	-	2	40.0	-	-	3	60.0	-	-	5	5.6
Electronics	1	20.0	-	-	-	-	1	20.0	2	40.0	1	20.0	5	5.6
Mining/ Smelting	-	-	2	25.0	1	12.5	-	-	4	50.0	1	12.5	8	8.9
Forest Products	-	-	-	-	1	14.3	-	-	3	42.9	3	42.9	7	7.8
Trade	-	-	-	-	-	-	1	12.5	3	37.5	4	50.0	8	8.9
Mnf./ Automative	-	-	-	-	-	-	1	25.0	2	50.0	1	25.0	4	4.4
Mnf./ Aerospace	-	-	-	-	1	16.7	1	16.7	2	33.3	2	33.3	6	6.7
Construction	-	-	-	-	4	80.0	-	-	1	20.0	-	-	5	5.6
Transport/ Communic.	-	-	-	-	-	-	1	14.3	3	42.9	3	42.9	7	7.8
Textiles	-	-	-	-	-	-	-	-	1	100.0	-	-	1	1.1
Service	-	-	-	-	-	-	-	-	3	75.0	1	25.0	4	4.4
Finance, Insur/ Real Estate	-		-	-	-	-	1	25.0	-	-	3	75.0	4	4.4
Fishing	-	-	-	-	-	-	-	-	1	100.0	-	-	1	1.1
Other	-	-	-	-	1	14.3	-	-	2	28.6	4	57.1	7	7.8
Total	1	1.1	2	2.2	11	12.2	7	7.8	42	46.7	27	30.0	90	100.0

V. OPERATIONS PLANNING

Operations Planning was previously defined as dealing with the shorter term operating aspects of the firm. It is usually related to the budget process and goes into extensive detail.

The study shows that 147 of the 154 (95.4%) firms surveyed do Operations Planning (Table 13).

TABLE 13. OPERATIONS PLANNING/SECTOR/PROVINCE

Industrial Sector	Alberta	Ontario	Quebec	Nova Scotia	Total		Total Surveyed
	#	#	#	#	#	%	#
Energy/ Petrochem.	8	7	3	1	19	100.0	19
Mnf. Machine Equipment	-	4	3	5	12	70.0	17
Electronics	-	7	4	1	12	100.0	12
Mining/ Smelting	4	5	2	1	12	100.0	12
Forest Products	-	4	4	4	12	100.0	12
Trade	1	5	3	2	11	100.0	11
Mnf./ Automotive	-	5	3	2	10	90.9	11
Mnf./ Aerospace	-	6	3	1	10	100.0	10
Construction	4	3	1	1	9	90.0	10
Transport/ Communic.	1	-	6	2	9	100.0	9
Textiles	-	-	5	3	8	100.0	8
Service	-	2	2	1	5	100.0	5
Finance, Insur./ Real Estate	1	1	3	-	5	100.0	5
Fishing	-	-	1	3	4	100.0	4
Other	5	2	2	-	9	100.0	9
Total	24	96.0%	51	89.5%	45	100.0%	27	100.0%	147	95.4%	
Total Surveyed	25		57		45		27		154		

Operations Planning by Province

The next step was to determine the companies that were doing Operations Planning by the province of interview. Table 14 again indicates that the concentration of companies not planning are in Ontario.

TABLE 14. OPERATIONS PLANNING/PROVINCE

	No		Yes		Row Total	
	#	%	#	%	#	%
Alberta	1	4.0	24	96.0	25	16.2
Ontario	6	10.5	51	89.5	57	37.0
Quebec	-	-	45	100.0	45	29.2
Nova Scotia	-	-	27	100.0	27	17.5
Total	7	4.5	147	95.5	154	100.0

To test this further, Table 15 on Operations Planning by industry and province, was prepared. The figures show that the industries that tend to do the planning were spread throughout the provinces while those industries who tend not to do planning are located in Ontario.

A previous table (No. 7) showed the Machine Equipment Manufacturing Sector was low in Strategic Planning. It is also relatively low for Operations Planning. The firms interviewed in this sector include a number of family-owned type businesses. This could be the reason for less planning. This sector alone accounts for five of the seven firms not doing Operations Planning. Additionally, there is one firm in each of the Construction and Manufacturing/Automotive sectors not doing Operations Planning.

TABLE 15. OPERATIONS PLANNING/SECTOR/PROVINCE

Industrial Sector	Alberta		Ontario		Quebec		Nova Scotia		Row Total	
	#	of (Total)	#	of (Total)	#	of (Total)	#	of (Total)	#	%
Energy/ Petrochem.	8	(8)	7	(7)	3	(3)	1	(1)	19	12.9
Mnf. Machine Equipment	-	-	4	(8)	3	(3)	5	(5)	12	8.2
Electronics	-	-	7	(7)	4	(4)	1	(1)	12	8.2
Mining/ Smelting	4	(4)	5	(5)	2	(2)	1	(1)	12	8.2
Forest Products	-	-	4	(4)	4	(4)	4	(4)	12	8.2
Trade	1	(1)	5	(5)	3	(3)	2	(2)	11	7.5
Mnf./ Automotive	-	-	5	(6)	3	(3)	2	(2)	10	6.8
Mnf./ Aerospace	-	-	6	(6)	3	(3)	1	(1)	10	6.8
Construction	4	(4)	3	(4)	1	(1)	1	(1)	9	6.1
Transport/ Communic.	1	(1)	-	-	6	(6)	2	(2)	9	6.1
Textiles	-	-	-	-	5	(5)	3	(3)	8	5.4
Service	-	-	2	(2)	2	(2)	1	(1)	5	3.4
Finance, Insur./ Real Estate	1	(1)	1	(1)	3	(3)	-	-	5	3.4
Fishing	-	-	-	-	1	(1)	3	(3)	4	2.7
Other	5	(5)	2	(2)	2	(2)	-	-	9	6.1
Total	24	16.3	51	34.7	45	30.6	27	18.4	147	100.0

Operations Planning by definition was the shorter term plan although there were some Operations Plans as far in the future as ten years. Table 16 identifies the Operations Plans by each industry and number of years into the future. Only 2.7% of the companies planned for a period longer than five years; 46.3% for five years; the balance on shorter time frames. The most prevalent below five years are the one-year time frame (30.6%) and the three-year time frame (12.9%).

TABLE 16. OPERATIONS PLANNING/SECTOR/TIME FRAMES

Industrial Sector	1 Yr.		2 Yrs.		3 Yrs.		4 Yrs.		5 Yrs.		7 Yrs.		10 Yrs.		Total		Total Co. Surveyed	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Energy/ Petrochem.	4	21.1	2	10.5	-	-	-	-	13	68.4	-	-	-	-	19	12.9	19	12.3
Mnf. Machine Equipment	4	33.3	1	8.3	2	16.7	-	-	4	33.3	-	-	1	8.3	12	8.2	17	11.0
Electronics	1	8.3	2	16.7	4	33.3	-	-	5	41.7	-	-	-	-	12	8.2	12	7.8
Mining/ Smelting	2	16.7	-	-	2	16.7	-	-	6	50.0	-	-	2	16.7	12	8.2	12	7.8
Forest Products	4	33.3	1	8.3	-	-	-	-	7	58.3	-	-	-	-	12	8.2	12	7.8
Trade	3	27.3	-	-	1	9.1	-	-	7	63.6	-	-	-	-	11	7.5	11	7.1
Mnf./ Automotive	2	20.0	1	10.0	-	-	1	10.0	6	60.0	-	-	-	-	10	6.8	11	7.1
Mnf./ Aerospace	3	30.0	-	-	-	-	-	-	7	70.0	-	-	-	-	10	6.8	10	6.5
Construction	3	33.3	-	-	2	22.2	-	-	3	3.33	1	11.1	-	-	9	6.1	10	6.5
Transport/ Communic.	3	33.3	-	-	4	44.4	-	-	2	22.2	-	-	-	-	9	6.1	9	5.8
Textiles	4	50.0	1	12.5	1	12.5	-	-	2	25.0	-	-	-	-	8	5.4	8	5.2
Service	2	40.0	-	-	2	40.0	-	-	1	20.0	-	-	-	-	5	3.4	5	3.2
Finance, Insur./ Real Estate	3	60.0	-	-	-	-	-	-	2	40.0	-	-	-	-	5	3.4	5	3.2
Fishing	2	50.0	1	25.0	1	25.0	-	-	-	-	-	-	-	-	4	2.7	4	2.6
Other	5	55.6	1	11.1	-	-	-	-	3	33.3	-	-	-	-	9	6.1	9	5.8
Total	45	30.6	10	6.8	19	12.9	1	0.7	68	46.3	1	0.7	3	2.0	147	100.0	154	100.0

The elements of the Operations Plans were examined. Table 17 shows each of these elements.

TABLE 17. OPERATIONS PLANNING/ELEMENTS/TIME FRAMES

Industrial Sector	Element not Planned	1 Yr.	2 Yrs.	3 Yrs.	4 Yrs.	5 Yrs.	7 Yrs.	10 Yrs.	Mean Time
Operations Plan	-	45	10	19	1	68	1	3	3.4
Operating B	2	54	10	21	1	57	1	1	3.0
Capital Budget	5	45	10	19	1	63	1	3	3.2
Marketing Plan	13	42	10	18	1	60	-	3	3.0
Research & Development	69	22	4	10	1	41	-	-	1.8
Manpower	2	62	15	17	2	45	1	1	2.7

The Operations Plan has a mean time frame of 3.4 years. The elements of the Plan indicate that operating budgets, capital budgets and marketing plans, respectively, all have a similar time frame as the Operations Plan itself. Some of the variations here, of course, are caused by the fact that certain companies do not plan that particular element and that reduces the time frame. Sixty-nine of the 147 companies do not do research and development and this reduces the mean time frame to 1.8 years. A similar situation existed in Strategic Planning.

Manpower Planning is done by the majority of the companies who do Operations Planning but the mean time frame is 2.7 years. The number of companies that do Operations Planning for only one year is 45 but the number that do Manpower Planning for one year only is 62. The only element that almost exactly matches the length of time of the Operations Plan is the capital budget which is exactly the same for those companies up to 4 years.

Five of the companies that do Operations Planning for 5 years do not carry out capital budget planning in that time frame. In other instances, including Manpower Planning, while the overall plan is for one time period certain elements of it tend to be shorter. This is particularly true in the Manpower Planning area. Ninety-six of the companies plan Operating Manpower for under 5 years in the future; forty-seven of the companies plan for 5 or more years.

To again test the size factor, Table 18 was prepared on Operations Planning to compare the extent of this activity in the groups broken out by Provincial size.

TABLE 18. OPERATIONS PLANNING/PROVINCIAL SIZE

	Operations Plan					
	No		Yes		Total	
	#	%	#	%	#	%
Not reported	-	-	2	100.0	2	1.3
To 100	2	25.0	6	75.0	8	5.2
101 - 500	4	11.1	32	88.9	36	23.4
501 - 1000	1	5.6	17	94.4	18	11.7
1001 - 5000	-	-	59	100.0	59	38.3
5001 -	-	-	31	100.0	31	20.1
Total	7	4.5	147	95.5	154	100.0

The table shows that every company employing more than 1,000 employees has an Operations Plan. Those that have 500 or less account for six of the firms who do not have an Operating Plan; the other is in the 501 to 1,000 group

It was learned previously that the seven companies not doing Operations Planning were in Manufacturing/Machine Equipment (6), Construction (1) and Manufacturing/ Automotive (1). This new data shows that the companies in these sectors not planning are small in size.

VI. MANPOWER PLANNING

Table 19 is a summary of the number of firms surveyed in each sector, and the number doing Strategic Planning, Strategic Manpower Planning, Operations Planning and Operations Manpower Planning, respectively. Operations Manpower Planning which almost parallels Operations Planning, will be the basis for most of the discussion in this section.

As noted previously in this report, 90 firms of the 154 surveyed are involved in Strategic Planning and 59 of those have a Strategic Manpower Plan. In the area of Operations Planning, 147 of the 154 are involved, and 145 of those have an Operations Manpower Plan.

For the purposes of this survey a Manpower Plan had to be committed, in writing, for at least one year into the future to be classed as a Manpower Plan. There is, however, a wide range of sophistication as to the process.

The larger corporations have Human Resources planning groups to complement other planning activities. They tend to be very thorough with the Manpower Planning process.

At the other end of the scale is the small business with an abundance of semi or unskilled labour in the community. Their Manpower Planning process in this case is simple; an operating plan/budget identifying manpower needs and, as was found at three or four locations in Central and Eastern Canada, a desk drawer full of current job application forms.

TABLE 19. MANPOWER PLANNING/SECTOR/STRATEGIC/OPERATIONS

Industrial Sector	No. of Firms	Strategic Planning	Strategic Manpower Planning	Operations Planning	Operations Manpower Planning
		#	#	#	#
Energy/ Petrochem.	19	18	11	19	18
Mnf. Machine Equipment	17	5	5	12	12
Electronics	12	5	5	12	11
Mining/ Smelting	12	8	5	12	12
Forest Products	12	7	3	12	12
Trade	11	8	4	11	11
Mnf./ Automotive	11	4	4	10	11 *
Mnf./ Aerospace	10	6	5	10	10
Construction	10	5	3	9	9
Transport/ Communic.	9	7	4	9	9
Textiles	8	1	-	8	8
Service	5	4	1	5	5
Finance, Insur./ Real Estate	5	4	3	5	5
Fishing	4	1	-	4	4
Other	9	7	6	9	8
Total	154	90	59	147	145

* One company had a combined Strategic and Operations Manpower Plan but no operating plan per se.

Although most companies have a Manpower Plan, planning is not done for all categories of employees in every case. Table 20 shows the categories of employees and the time frames for which they are planned.

TABLE 20. MANPOWER PLANNING/CATEGORIES/TIME FRAMES

Category	Not Done	1 Yr.	2 Yrs.	3 Yrs.	4 Yrs.	5 Yrs.	7 Yrs.	10 Yrs.
Managerial	16	45	16	19	3	41	2	3
Professional/ Technical	22	44	16	18	3	38	2	2
Clerical	52	44	10	10	3	24	1	1
Skilled Trades	30	55	11	13	4	31	-	1
Semi and Unskilled	43	55	13	10	3	21	-	-

This analysis of time frames for Manpower Planning appears consistent with the level of skill, sophistication and need of the individual category. The group planning furthest in the future is Managerial followed by Professional/Technical and skilled trades. There is a considerable drop then to the clerical and semi and unskilled areas which tend to be planned less and for much shorter time frames.

A. Manpower Planning - Processes and Sophistication

Successful Manpower Planning involves several elements; specifically, some of these are assumptions about the future, projecting availability of manpower and predicting work force characteristics.

Assumptions must be made over a wide range of topics. In some organizations these are not only internal assumptions about growth, market strategies and capital expenditures, but also assumptions pertaining to such things as government policy and economic conditions.

Eighty-four of the 145 organizations involved in Manpower Planning make a specific set of assumptions to assist in their planning. It is significant to note that firms that make formal assumptions are usually the same as those rated highly in the levels of sophistication discussed later.

Accurate predictions and projections of future work force characteristics and manpower availability respectively are critical to successful Manpower Planning. It is important to know what jobs must be done in the future and the types of skills required to do them.

Various sources of information are used to develope assumptions, projections and predictions (See Table 23, Page 44).

Several questions were asked to determine the detail of the total Manpower Planning process. The results are noted in Table 21.

Particularly significant in this table is the fact that all firms doing Manpower Planning (145) are making specific numerical estimates of future manpower requirements. Furthermore, a large number (130) are predicting future work force characteristics for the planning period. Both of these activities are indicative of a formal plan.

Although correlation is difficult, it appears there is some relationship between the firms classified as sophisticated planners (Table 22) and those making a specific act of assumption about the future. Many of the sophisticated planning companies also expand or modify assumptions at other levels of the organization, use environmental scanning techniques, project losses such as

TABLE 21. MANPOWER PLANNING PROCESS/RESPONSES

	Yes	No	Not Specified
Specific sets of assumptions are made about manpower in the future	84	60	-
Assumptions are modified or expanded at other levels of the organization	53	31	-
Techniques such as "Issues" Programs, Environmental planning, futurist predictions are utilized	36	103	15
Specific numerical estimates of future manpower requirements are made	145	7	2
Relatively simple surveys are done either independently or as part of other planning activities	90	42	22
More complex planning is done involving statistical studies, budgets, personal work programs, and special data gathering methods	42	90	22
Projections include allowances for losses such as retirements and attrition	117	21	16
Predictions of the future work force characteristics are made for the planning time period	130	8	16
Manpower plans are integrated from operation to operation	101	32	21
The plan includes possible reduction in people needed	105	30	19
**The organization uses a manpower model	14	140	-
Projections are in aggregate numbers	22	-	-
*Projections are for generic skills	16	-	-
*Projections are for specific skills	112	-	-
Not Specified	4	-	-

* - generic - a whole group (i.e., Engineers).
* - specific - a section of the group (i.e., Electrical Engineers).
** - The companies that stated manpower models were utilized were divided equally between Ontario and Quebec and were described as Computer, Linear, Interactive Flow Simulator, University of Montreal, Computer Stock Replacement Control and Manual Flow Chart types of Models.

TABLE 22. MANPOWER PLANNING/SECTOR/LEVEL OF SOPHISTICATION

Industrial Sector	Unsophisticated A	Unsophisticated B	Sophisticated C	Sophisticated D	Total
Energy/ Petrochem.	2	-	11	5	18
Mnf. Machine Equipment	9	1	2	-	12
Electronics	4	1	4	2	11
Mining/ Smelting	8	-	2	2	12
Forest Products	4	-	7	1	12
Trade	3	2	6	-	11
Mnf./ Automotive	5	1	3	2	11
Mnf./ Aerospace	5	2	3	-	10
Construction	4	-	4	1	9
Transport/ Communic.	3	-	3	3	9
Textiles	5	3	-	-	8
Service	1	1	3	-	5
Finance, Insur./ Real Estate	-	1	4	-	5
Fishing	2	-	2	-	4
Other	2	-	4	2	8
Total	57	12	58	18	145
	69		76		

retirements and attrition, integrate Manpower Plans from operation to operation and so forth.

As discussed earlier in this section, various levels of sophistication were found in the Manpower Planning process. The responses noted in Table 21 clearly indicate some of the variations.

In reviewing the Manpower Planning processes, a wide variety of approaches were found. These ranged from simplistic to very complex. For purposes of this study indicators of sophistication were categorized by determining which of the undernoted components of Manpower Planning exist in any Manpower Plan:

- Manpower requirements identified in specific terms
- Studies conducted concerning attrition, retirements, etc.
- Training needs and plans identified
- Performance appraisals conducted
- Developmental needs described and assignments determined
- Career paths outlined
- Succession plans outlined

The levels of sophistication have been divided into four categories:

Level A. A fairly simplistic plan based on production, volumes, loads, etc. Extrapolation of historical data is the main tool used in the planning process. The plan identifies manpower requirements, and, in many cases, training requirements for skilled and unskilled workers.

Level B. Plans in this category are also based on production, volumes, loads, etc., and training requirements for the skilled and unskilled. However, in addition to the

extrapolation of historical data firms in this category may be involved in studies concerning attrition, retirements, etc., and simple research through use of industry surveys and data supplied by industry associations or other such projections.

Level C. This level has a plan identifying the manpower requirements and training needs at all levels of the organization. In addition it plans all or some of: performance appraisals, developmental assignments and career paths for management and professional personnel.

Level D. Plans in this category cover all of the foregoing throughout all levels of the organization.

There is, generally, a somewhat hazy division between A and B, and C and D, respectively. Perhaps a clearer distinction would be to refer to planning as unsophisticated (A and B) and sophisticated (C and D). Nonetheless, the four categories have been retained as a basis for discussion.

Table 22 indicates the level of sophistication, according to these parameters, to which firms in each sector appear to be conducting their Manpower Planning. Clearly certain industries stand out as having sophisticated Manpower Planning processes. These would include the Energy/Petrochemical, Forest Products, Transport/Communications and Finance/Insurance/Real Estate sectors.

A sector such as Manufacturing/Machine Equipment in which a preponderance did not plan generally shows low levels of sophistication for those who do plan. The Mining/Smelting, Textiles and Manufacturing/Aerospace sectors show a high level of Manpower Planning but a low level of sophistication in the process. The balance of industries could not be categorized as being sophisticated or not, but rather showed a wide variation between firms.

B. Data Sources Utilized

Executives were asked to indicate the usefulness of certain information as part of the Manpower Planning process. Their responses are shown in Table 23.

TABLE 23. MANPOWER PLANNING/USEFULNESS OF DATA

	Not Used	Used Infrequently	Used Often	Very Valuable
a) Extrapolation of Historic Data	19	27	43	49
b) Statistic Canada Publications	49	54	28	6
c) Industry or Management Associations Publications	16	50	53	19
d) COFOR	128	5	1	1
e) FOIL	132	2	1	-
f) Provincial Government Forecasts	56	55	14	6
g) Company Surveys	9	33	44	48
h) Consultant Reports	51	40	30	10

Industry material, company surveys, and extrapolated historical data are used most often for Manpower Planning.

It is interesting to note that two federal government reports, COFOR (Canadian Occupational Forecasting Program) and FOIL (Forward Occupational Imbalance Listing) are seldom used and in most cases unknown to the persons interviewed.

Clearly the current data used is largely based within the firm (or self generated). The categories of extrapolation and company surveys tend to be internal. This is followed by reliance on industry or management association data

and consultant reports in importance for Manpower Planning.

Government produced data is the least used for Manpower Planning purposes. A later section in the report deals with the participants' views of governments at both the federal and provincial level. One of the areas of concern expressed is data generation, its timeliness and its usefulness.

Most frequently, the concerns are that government data is out of date or not produced in a manner that it can be utilized for Manpower Planning. The companies surveyed were vocally critical but also pragmatically critical of current government data generation. It is not useful for Manpower Planning purposes.

C. Planning Accuracy

The executives were asked to estimate the accuracy of their Manpower Planning for several time frames. Their responses are recorded in Table 24.

TABLE 24. MANPOWER PLANNING/ACCURACY OF FORECAST

Forecast Year	Estimated Accuracy (variance from 100%) ±10%	%	±25%	%	±50%	%	±75%	%	±100%		Total Responses
1	87	(71.3)	32	(26.2)	2	(1.6)	1	(.8)			122
2	36	(29.5)	50	(40.9)	11	(9.0)					
3	15	(12.3)	44	(36.1)	26	(21.3)	2	(1.6)			
5	8	(6.5)	33	(27.0)	21	(17.2)	4	(3.3)	2	(1.6)	
5+	4	(3.3)	16	(13.1)	17	(13.9)	4	(3.3)	5	(4.1)	

In the first year of the plan 71.3% consider the plan very valid and another 26% show a variation of plus or minus 25%. Some companies of course plan only one year so the number of responses drops each year. Some also do not have five years experience in order to make a judgement.

In the second year a total of over 70% still are with the ± 25%. However, by the third year this is less than 50%. By the fifth year only 16.4% are doing the planning or have ± 25% confidence in the forecast.

The estimated accuracy of the Manpower Plan declines as the time frame increases. Clearly the first year of the Manpower Plans is relatively accurate. The second year shows declines but a majority of respondees still have some confidence. However, after three years the confidence level drops below 50% of the respondees.

In response to a specific question 32 firms noted frequent changes to their Manpower Plans. The reasons given were:

. Business conditions, market fluctuations, changes in market and sales forecasts	25
. Unavailability of raw materials	2
. Inexperienced planners	2
. High turnover	1
. Organization changes	1
. Technological changes	1

D. Manpower Shortages

This study was not designed to deal with manpower shortages per se. However, in dealing with categories of Manpower Planning, some indicator of shortages or surpluses was needed.

In recent years, there has been much speculation as to the impact of labour shortages. Two questions relating to manpower availability were asked:

> Has manpower availability been a concern to your firm in the past?
>
> Do you anticipate that manpower availability will be a problem in the 1980's?

The survey shows all industrial sectors have experienced manpower shortages in recent years. Skilled trades, engineers and computer personnel, in that order, have been identified as the major concern. These were followed by managers and accountants.

The participants anticipate shortages to continue through the 1980's in the same categories. Table 25 shows the number of responses in each province to the questions.

TABLE 25. MANPOWER SHORTAGES/PROVINCE/SKILL

Province	Managerial		Engineers		Accountants		Computers		Trades	
	Past	80's	Past	80's	Past	80's	Past	80's	Past	80's
Alberta	1	1	10	12	1	3	5	5	7	7
Ontario	6	8	20	23	3	4	22	27	26	27
Quebec	5	6	13	17	2	2	12	19	22	24
Nova Scotia	2	2	2	4	0	1	3	4	11	12

The participants were asked how these manpower shortages have affected their particular operation. The shortages have been costly to most firms in terms of lost business, inefficiencies, excessive overtime and much more. The participants' responses are listed in the following categories:

- Lost business; slippage in schedules; new projects delayed 27
- Costly inconvenience and inefficiency; lower productivity 26
- Excessive overtime 21
- Accelerated training programs 17
- Operating with lesser skills resulted in lower standards and levels of service (quality lacking) 17

. Recruiting in other parts of the country and overseas 17

. Use of consultants and contractors 11

Clearly the shortage of qualified people has been costly for these Canadian organizations. Given their outlook for increased demand of these skills these costs are likely to rise. This can only be corrected when a more appropriate balance of skilled personnel exists in the Canadian work force.

E. Participant Views of Manpower Planning

The participants were asked to express their thoughts on the Manpower Planning process generally. There were far more positive comments than negative (181 to 58). The fact that some firms had more than one response is indicated in the total. Positive responses ranged from such "motherhood" type statements as "absolutely necessary" to fairly detailed descriptions about how it enables the company to make better predictions about supply and demand and better utilization of its personnel.

Negative comments generally deal with one or more of the following:

. credibility of the process

. difficulty of getting acceptance

. misuse through lack of understanding

. impracticality

Complete details of the responses, both positive and negative are included in Appendix III to this report.

Another method of determining judgements about Manpower Planning is to look at real or imaginary impediments to the process by the participants. Many of the impediments noted correlate with the negative comments on Manpower Planning. All industrial sectors have identified impediments to Manpower Planning. Lack of resources (human or financial) was mentioned by 14 of 15 sectors; management attitudes and business changes, respectively, in 12 of the 15, and skil

shortages in 10 of the 15. Other impediments were identified to a lesser degree. These have been categorized into ten major headings. The major headings and actual or similar responses follow:

- Management Attitudes
- Resources
- Business Developments
- Shortages
- Political
- Information
- Social Values
- Organization
- Technological Change
- Other

F. Participant Views of the Roles of Government in Manpower Planning

Participants in the survey were asked for their views on the role they saw for senior governments in Manpower Planning. The following is a summary of responses on this subject, which has been divided into six categories.

1. Coordination (60 responses)

   This was taken to mean coordination:

   - between the two senior levels of government on such matters as phasing in mega projects, immigration, inter-region mobility, methods of encouraging people to move to remote locations;
   - amongst provincial departments;
   - amongst federal departments.

   A desire for one contact point with government on manpower issues, growth forecasts, and other such matters is the essential message that is given consistently by the respondents.

2. Outdated Information (46 responses)

   - There was feeling that government produced information is usually not helpful because it is outdated.

3. Feedback (45 responses)

   - Companies surveyed do not know why information is requested and what it is being used for.

   - They have seen no evidence that any action is taken on information supplied.

   - In terms of information gathered, government agencies should determine in consultation what industry and governments require.

   - There is an overwhelming desire for government to understand what industry's needs are and to respond to those needs.

4. Information by Industry (40 responses)

   - Firms want information pertinent to their sector, on a regional basis that includes universities and vocational school projections. They are more interested in the future than the past.

5. Vocational (Education - Generally) (38 responses)

   - Considerable concern was shown that educational facilities are not responsive to industry needs; this includes universities, technical schools and vocational schools.

   - A widespread belief was expressed that governments should play a more active role in determining, in consultation with industry, that enrollments in all areas match forecasted needs.

   - There was an overall belief that schools, instructors, counsellors, etc. consider tradespeople "second class citizens"; thus students who would be better suited for the trades take an academic course.

- It was said that vocational assistance and apprenticeship programs are not available to small companies. This situation concerns both large and small companies (large companies feel they are training for smaller companies).

6. Less Government Interference (26 responses)

- There is a fairly strong feeling that governments are too involved in certain areas and have not produced anything that is meaningful. As a consequence some respondents are saying "keep out of our business".

Participants were asked to complete a checklist to indicate whether they thought the roles of the federal and provincial governments should increase, stay the same or reduce in a number of Manpower Planning areas. The responses are shown in Tables 26 and 27.

TABLE 26. MANPOWER PLANNING/FEDERAL GOVERNMENT ROLE

	Reduce Role	Stay Same	Increase Role
- Collection of information and data on manpower supply	23	47	46
- Collection of information and data on manpower demand	35	23	44
- Developing models for manpower planning	34	39	34
- Planning its own manpower	3	20	87
- Developing in-company training programs	23	34	56
- Immigration	22	52	34
- Apprenticeship	18	39	54
- Vocational skills training	21	37	59
- Mobility incentives	12	42	62

TABLE 27. MANPOWER PLANNING/PROVINCIAL GOVERNMENT ROLE

	Reduce Role	Stay Same	Increase Role
- Collection of information and data on manpower supply	20	49	47
- Collection of information and data on manpower demand	18	51	46
- Developing models for manpower planning	33	43	32
- Planning its own manpower	2	22	84
- Developing in-company training programs	24	30	59
- Immigration	29	39	32
- Apprenticeship	9	39	68
- Vocational skills training	7	29	85
- Mobility incentives	-	-	-

When this data is examined in concert with the previous comments on the government role the message appears clear.

Governments, always in consultation with industry should:

- carry on or increase their role with respect to collection of data and information on supply and demand with a proviso: "do not increase the bureaucracy to do it, avoid duplication of effort, and provide current data";

- assist companies with Manpower Planning models and in-company training programs;

- increase role in apprenticeship and vocational skills training programs with a goal of getting better value for dollars spent;

- continue current role in immigration;

- increase role in mobility incentives.

The most significant of these responses perhaps is that both senior levels of governments can show leadership by increasing the effectiveness of their own Manpower Planning.

G. Manpower Planning by Industrial Sector, Province and Provincial Size of Firm

Having reviewed a number of elements of Manpower Planning an attempt was made to identify critical differences. In particular the three variables of Industrial Sector, Province, and the Provincial Size of the firm were examined.

Previously, it was seen that in both Strategic and Operations Planning there were differences in each of these factors. In order to attempt to identify the effects of these variables on Manpower Planning a series of bi-variate tables was prepared. In addition to comparing the existence of Manpower Plans(G.1) by these three variables, the following were also compared:

G.2 - Manpower Planning Time Frames

G.3 - Categories of Manpower Plans

G.4 - Responsibility for Manpower Planning

Having reviewed these bi-variate tables an attempt was made to do a three-way computer analysis of these three variables. The result of this analysis is shown in:

G.5 - Synthesis of three variables

G.1 Analysis of Manpower Planning

Table 28 shows the extent of Manpower Planning by the Provincial Size of firms in each Industrial Sector.

TABLE 28. MANPOWER PLANNING/SECTOR/PROVINCIAL SIZE

Industrial Sector	Not Reported	To 100	101-500	501-1000	1001-5000	5000+	Row Total	
	#	#	#	#	#	#	#	
Energy/ Petrochem.	-	-	1	1	12	4	18	12.4
Mnf. Machine Equipment	-	1	7	-	4	-	12	8.3
Electronics	1	-	1	3	5	1	11	7.6
Mining/ Smelting	-	2	1	-	7	2	12	8.3
Forest Products	-	-	3	1	4	4	12	8.3
Trade	-	-	-	2	4	5	11	7.6
Mnf./ Automotive	-	-	-	4	6	1	11	7.6
Mnf./ Aerospace	-	-	3	2	2	3	10	6.9
Construction	1	-	6	1	1	-	9	6.2
Transport/ Communic.	-	1	1	1	3	3	9	6.2
Textiles	-	1	3	2	2	-	8	5.5
Services	-	-	-	-	4	1	5	3.4
Finance, Insur./ Real Estate	-	-	-	1	1	3	5	3.4
Fishing	-	-	2	-	2	-	4	2.8
Other	-	-	2	-	2	4	8	5.5
Total	2 (1.4%)	5 (3.4%)	30 (20.7%)	18 (12.4%)	59 (40.7%)	31 (21.4%)	145	100.0

When this table is compared to Table 16 and those sectors doing Operations Plans in the five-year or longer time frame, size begins to appear as an important variable. For instance, the Energy/Petrochemical sector was characterized by 89% of the firms being over 1,000 employees and was by far planning on the greater time frames. Conversely, Manufacturing/ Machine Equipment was characterized by many more firms with a small number of employees. In fact, two-thirds of the 12 in the latter sector who were doing Operations Planning had 500 or less employees.

While there are some differences between various sectors these do not appear to totally explain the differences in Manpower Planning horizons. For that matter they tend to indicate that those sectors that have short-term constraints such as Textiles (related to a short-term fashion market) or Fishing (related to a short-term season and political decisions), as would be expected, have shorter time frames. Sectors that have high technology and high capital costs tend to require longer lead times and therefore longer planning time frames.

However, this does not totally explain the differences between sectors. There are some indications that the differences could be explained, at least in part, by the size of companies in that sector. Size would appear to have as big an impact as the consideration of technology, markets and capital costs.

The data was then reviewed to determine if there were significant differences between the provinces in terms of Manpower Planning. Table 29 illustrates Manpower Planning by Provincial Size and Province.

The table shows the heaviest concentration of large firms (1,000 or more) is in Ontario, with 74.5% in this category, followed closely by Quebec with 65.9%. Alberta and Nova Scotia follow with 54.1% and 38.5%, respectively.

Table 30 illustrates the extent of Manpower Planning in each Industrial Sector and Province. Six firms in Ontario do not do Manpower Planning whereas there is only one not planning in each of the other three provinces. Five of the firms not planning are in the Manufacturing/Machine Equipment sector; four of these are in Ontario and one is in Nova Scotia. Also not planning are one Energy/Petrochemical firm

TABLE 29. MANPOWER PLANNING/PROVINCIAL SIZE/PROVINCE

	To 100		101-500		501-1000		1001-5000		5000+		Total	
	#	%	#	%	#	%	#	%	#	%	#	%
Alberta	-	-	2	8.3	7	29.2	2	8.3	11	45.8	2	8.3	24	16.6
Ontario	2	3.9	-	-	4	7.8	7	13.7	21	41.2	17	33.3	51	35.2
Quebec	-	-	2	4.5	8	18.2	5	11.4	17	38.6	12	27.3	44	30.3
Nova Scotia	-	-	1	3.8	11	42.3	4	15.4	10	38.5	-	-	26	17.9
Total	2	1.4	5	3.4	30	20.7	18	12.4	59	40.7	31	21.4	145	100.0

in Alberta, and one Electronics and Construction firm each in Ontario.

A high percentage of firms in each province is involved in Manpower Planning. Alberta, Quebec and Nova Scotia are all in the 96% to 97.8% range whereas Ontario is slightly less at 89.5%.

Although the figures show that Ontario trails the other provinces in Manpower Planning, the province variable may not be the most critical. All of the nine firms not planning employ less than 500 employees in the province of interview. In fact by inspecting the data on these nine firms the largest employed 350 people.

TABLE 30. MANPOWER PLANNING/SECTOR/PROVINCE

Industrial Sector	Alberta		Ontario		Quebec		Nova Scotia		Total	
	#	%	#	%	#	%	#	%	#	%
Energy/ Petrochem	7	29.2	7	13.7	3	6.8	1	3.8	18	12.4
Mnf. Machine Equipment	1	4.2	4	7.8	3	6.8	4	15.4	12	8.3
Electronics	-	-	6	11.8	4	9.1	1	3.8	11	7.6
Mining/ Smelting	4	16.7	5	9.8	2	4.5	1	3.8	12	8.3
Forest Products	-	-	4	7.8	4	9.1	4	15.4	12	8.3
Trade	1	4.2	5	9.8	3	6.8	2	7.7	11	7.6
Mnf./ Automotive	-	-	6	11.8	3	6.8	2	7.7	11	7.6
Mnf./ Aerospace	-	-	6	11.8	3	6.8	1	3.8	10	6.9
Construction	4	16.7	3	5.9	1	2.3	1	3.8	9	6.2
Transport/ Communic.	1	4.2	-	-	6	13.6	2	7.7	9	6.2
Textiles	-	-	-	-	5	11.4	3	11.5	8	5.5
Service	-	-	2	3.9	2	4.5	1	3.8	5	3.4
Finance, Insur./ Real Estate	1	4.2	1	2.0	3	6.8	-	-	5	3.4
Fishing	-	-	-	-	1	2.3	3	11.5	4	2.8
Other	5	20.8	2	3.9	1	2.3	-	-	8	5.5
Total	24	100.0	51	100.0	44	100.0	26	100.0	145	100.0
Total Surveyed	25		57		45		27			
% Surveyed	96		89.5		87.8		96.3			

G.2 Analysis of Manpower Planning Time Frames

As a further test of the three variables the time frames for Manpower Planning were reviewed. Table 31 shows the overall time frames and the mean and median for each province.

TABLE 31. MANPOWER PLANNING/PROVINCE/TIME FRAMES

	1 Yr.		2 Yrs.		3 Yrs.		4 Yrs.		5 Yrs.		7 Yrs.		10 Yrs.		Total Surveyed in Province		Mean	Median
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%		
Alberta	7	29.2	3	12.5	1	4.2	-	-	11	45.8	1	4.2	1	4.2	24	16.6	3.7	4.6
Ontario	16	31.4	4	7.8	4	7.8	2	3.9	25	49.0	-	-	-	-	51	35.2	3.3	4.3
Quebec	28	63.6	4	9.1	7	15.9	-	-	5	11.4	-	-	-	-	44	30.3	1.9	1.3
Nova Scotia	11	42.3	4	15.4	6	23.1	-	-	5	19.2	-	-	-	-	26	17.9	2.4	2.0
Total	62	42.8	15	10.3	18	12.4	2	1.4	46	31.7	1	0.7	1	0.7	145	100.0		

The time frames show some significant differences. In Alberta 54.2% of the companies are doing Manpower Planning for five or more years, compared to 49% in Ontario, 19.2% in Nova Scotia, and only 11.4% in Quebec. In the latter two provinces there are heavy concentrations in planning for one, two and three years. Most prevalent is one year planning with over 63% of Quebec firms planning in this time frame. Conversely, in Alberta and Ontario there is less emphasis on the shorter time frames and more on the longer.

Because of the large standard deviations found we have not utilized the mean time frame for analysis. The median proved more effective in all cases. Certainly in this table the median (and indeed the mean) highlight the

differences between the provinces. Alberta and Ontario have median time frames over twice as large as Nova Scotia and three times as long as Quebec.

However, if we refer back to Table 15 (page 32) we find Alberta dominated by four industries, each of which was dominated by large companies. Nova Scotia was dominated by four other industries with a smaller size factor.

The Manpower Plan time frames for the various sizes of organization were then determined. Table 32 shows the results. Again it is the larger firms that are planning generally further into the future than the smaller ones. If 1,000 and below is used as a cutoff there are only 12 of 53 (23%) firms planning five or more years in the future. Above 1,000 employees 35 of 90 (39%) of firms are planning at least five years in the future. Another aspect of this time frame that must be kept in mind is that there was a high percentage of very large firms (1,000 and over) in Quebec. They were certainly doing the planning but their time frames tended to be shorter than those of the large firms in Ontario and Alberta.

TABLE 32. MANPOWER PLANNING/TIME FRAMES/PROVINCIAL SIZE

Time Frame	Not Reported		To 100		101-500		501-1000		1001-5000		5000+		Total	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
1	1	50.0	3	60.0	13	43.3	9	50.0	24	40.7	12	38.7	62	42.8
2	-	-	-	-	4	13.3	3	16.7	6	10.2	2	6.5	15	10.3
3	-	-	-	-	8	26.7	-	-	7	11.9	3	9.7	18	12.4
4	-	-	-	-	-	-	1	5.6	-	-	1	3.2	2	1.4
5	1	50.0	1	20.0	4	13.3	5	27.8	22	37.3	13	41.9	46	31.7
7	-	-	-	-	1	3.3	-	-	-	-	-	-	1	0.7
10	-	-	1	20.0	-	-	-	-	-	-	-	-	1	0.7
Total	2	100.0	5	100.0	30	100.0	18	100.0	59	100.0	31	100.0	145	100.0
Mean				3.6		2.4		2.4		2.8		3.0		
Median				1.3		2.0		1.5		2.4		3.0		

Again the median time frames show the larger firms have the longer median times. Even with the situation in Quebec (many large firms with short time frames) overall size still produces longer time frames. As a further illustration the data was separated into over and under 1,000 employees. The results are shown in Table 33.

TABLE 33. MANPOWER PLANNING/PROVINCIAL SIZE/ MEAN AND MEDIAN TIME FRAMES

Company Size	No.	Mean	Std. Dev.	Median	Min.	Max.
To 1,000*	55	2.5	2.0	1.7	1	10
Over 1,000	90	2.9	1.8	2.6	1	5
Total	145	2.8	1.9	2.2	1	10

* Includes two companies of unstated size.

Even with one company under 1,000 with a time frame of 10 years the median is significantly longer in the larger companies.

Table 34 illustrates the time frames for Manpower Planning in each Industrial Sector. Forty-eight of 145 firms (33.1%) plan for five or more years. This longer term planning is highest in the Energy/Petrochemical sector with 12 of 18 followed by Mining/Smelting, Forest Products, Trade and Manufacturing/Automotive sectors, respectively, each with five firms. A requirement for high capital outlays, considerable lead time and a need for well trained managerial and professional personnel would appear to explain this trend.

Planning in 97 of the firms (66.9%) ranges from one to four years. The highest concentration is at the one year period which is the planning horizon for 62 firms. Many of the firms planning for this period are in the Manufacturing/ Machine Equipment, Manufacturing/Aerospace, Textiles and Fishing sectors. Many firms in these sectors were relatively small and tied their Manpower Plan directly to an operating budget. Their requirements were largely in the skilled and semi skilled categories.

TABLE 34. MANPOWER PLANNING/SECTOR/TIME FRAMES

Industrial Sector	1 Yr.		2 Yrs.		3 Yrs.		4 Yrs.		5 Yrs.		7 Yrs.		10 Yrs.		Total		Mean	Median
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%		
Energy/ Petrochem.	4	6.5	2	13.3	-	-	-	-	12	26.1	-	-	-	-	18	12.4	3.8	4.8
Mnf. Machine Equipment	6	9.7	1	6.7	4	22.2	-	-	1	2.2	-	-	-	-	12	8.3	2.1	1.5
Electronics	4	6.5	2	13.3	2	11.1	-	-	3	6.5	-	-	-	-	11	7.6	2.6	2.3
Mining/ Smelting	4	6.5	-	-	2	11.1	-	-	5	10.9	-	-	1	100.0	12	8.3	3.8	3.5
Forest Products	5	8.1	2	13.3	-	-	-	-	5	10.9	-	-	-	-	12	8.3	2.9	2.0
Trade	5	8.1	-	-	1	5.6	-	-	5	10.9	-	-	-	-	11	7.6	3.0	3.0
Mnf./ Automotive	4	6.5	1	6.7	-	-	1	50.0	5	10.9	-	-	-	-	11	7.6	3.2	4.0
Mnf./ Aerospace	5	8.1	3	20.0	-	-	-	-	2	4.3	-	-	-	-	10	6.9	2.1	1.5
Construction	3	4.8	1	6.7	3	16.7	-	-	1	2.2	1	100.0	-	-	9	6.2	2.9	2.7
Transport/ Communic.	4	6.5	-	-	4	22.2	-	-	1	2.2	-	-	-	-	9	6.2	2.3	2.6
Textiles	5	8.1	1	6.7	2	11.1	-	-	-	-	-	-	-	-	8	5.5	1.6	1.3
Service	4	6.5	-	-	-	-	-	-	1	2.2	-	-	-	-	5	3.4	1.8	1.1
Finance, Insur./ Real Estate	2	3.2	1	6.7	-	-	-	-	2	4.3	-	-	-	-	5	3.4	2.8	2.0
Fishing	4	6.5	-	-	-	-	-	-	-	-	-	-	-	-	4	2.8	1.0	1.0
Other	3	4.8	1	6.7	-	-	1	50.0	3	6.5	-	-	-	-	8	5.5	3.0	2.2
Total	62	100.0	15	100.0	18	100.0	2	100.0	46	100.0	1	100.0	1	100.0	145	100.0	2.8	2.2

The analysis of medians show the following industries significantly longer than the overall: Energy/Petrochemical, Mining/Smelting, Trade, Manufacturing/Automotive, Construction and Transportation/Communications. At the low end are Manufacturing/Machine Equipment, Manufacturing/Aerospace, Textiles, Service and Fishing.

If we then compare this to Table 1 we find that with one exception (Construction) those industries with longer time frames are also those industries characterized by large firms. Construction as noted previously is deceptive as numbers directly employed do not reflect real employment.

At the other end of the scale, those industries with low medians are characterized as having a predominance of smaller companies or a balance between small and large. Again there is one exception and that is the Service sector. This sector had only five firms, all of which were over 1,000. Three are hotels, one a fast food outlet and one a hospital. Only one plans more than one year ahead and its horizons are five years.

With this one exception those industries in the survey with mostly large firms had the longer planning time frames.

G.3 Analysis of Categories of Manpower Planning

During the survey five categories of employees were identified. Specifically the question of planning for each category and the time frames for that planning were requested. Table 35 shows these categories by province.

TABLE 35. MANPOWER PLANNING/CATEGORIES/PROVINCE

Category	Alberta	Ontario	Quebec	Nova Scotia
Managerial	22	47	41	18
Professional/ Technical	21	45	38	19
Clerical	14	31	32	16
Skilled trades	17	38	37	23
Semi and Unskilled	10	32	36	24
Companies planning manpower	24	51	44	26

Table 35 shows an interesting phenomenon. Alberta and Ontario, in terms of the types of manpower planned, follow a very similar pattern. However, that pattern changes as one moves east. In Quebec there is a greater emphasis on clerical and unskilled than in the previous two provinces. It changes further in Nova Scotia where the emphasis on planning managerial and professional/ technical drops but increased emphasis is placed on clerical, skilled trades and semi or unskilled. This could have a distinct bearing on the time frames for planning.

The overall Manpower Planning time frames for each category are shown in Table 36.

Most industries tend to plan their manpower in a rank order of:

1) Managerial

2) Professional/Technical

3) Skilled Trades

4) Clerical

5) Semi and Unskilled

However, there are some notable exceptions. Manufacturing/ Machine Equipment and Fishing put greater emphasis on categories 4 and 5. Mining/Smelting plans skilled trades longer than all other categories.

Table 37, Manpower Planning/Categories/Mean and Median Time Frames, again shows a descending order of time frames. This descending order will present some problems when companies are confronted with long training periods. In the Professional and Skilled Trades categories, training is approximately the same length of time. However, the planning period is almost one full year less in the median listing.

TABLE 36. MANPOWER PLANNING/SECTORS/CATEGORIES
MEAN TIME FRAMES

Industrial Sector	Managerial	Professional/ Technical	Clerical	Skilled Trades	Semi and Unskilled
Energy/ Petrochem	3.9	3.9	2.2	2.7	1.8
Mnf. Machine Equipment	1.0	0.9	0.9	1.5	1.8
Electronics	2.9	2.9	1.7	1.7	1.7
Mining/ Smelting	3.1	2.7	1.6	3.7	1.8
Forest Products	2.3	2.2	1.0	1.3	1.2
Trade	3.7	2.0	1.6	1.6	1.8
Mnf./ Automotive	2.7	2.7	2.7	2.8	2.5
Mnf./ Aerospace	2.4	2.4	1.8	2.4	2.0
Construction	2.6	2.6	1.3	0.6	0.6
Transport/ Communic.	2.3	2.3	1.4	2.1	1.6
Textiles	1.4	1.4	1.2	1.5	1.6
Services	1.6	1.4	1.4	1.2	1.0
Finance, Insur./ Real Estate	2.8	2.8	2.2	0.0	0.4
Fishing	0.5	0.2	0.5	0.7	1.0
Other	2.6	2.6	2.0	2.6	1.6

TABLE 37. MANPOWER PLANNING/CATEGORIES/TIME FRAMES

Category	No.	Mean	Std. Dev.	Median	Min.	Max.
Managerial	129	3.1	2.1	2.7	1	10
Professional/ Technical	123	3.0	2.0	2.6	1	10
Clerical	93	2.6	1.9	1.8	1	10
Skilled Trades	115	2.6	1.8	1.7	1	10
Semi and Unskilled	102	2.2	1.6	1.4	1	10

As there are differences in time frames for planning of various categories of employees these have been included as appendices. These are as follows:

Appendix IV	Managerial
Appendix V	Professional/technical
Appendix VI	Clerical
Appendix VII	Skilled
Appendix VIII	Semi/Unskilled

G.4 Manpower Planning Responsibilities

The next three Tables 38, 39 and 40 illustrate the specific assignment of Manpower Planning Responsibility by Provincial Size of firm, Province of interview and Industrial Sector, respectively. It appears that companies who are in a planning mode tend to assign the responsibility to a department or an individual. The two are so inter-related that it is difficult to reach any conclusions as to why the responsibility rests with an individual or a department. What is significant however is whether the responsibility <u>is</u> assigned specifically or considered a responsibility of general management.

The tables show it is assigned in 81.7% of the cases. Table 38 shows that as the size of the firm increases, responsibility for Manpower Planning is specifically assigned. Assignment is made in only 40% of the cases in firms employing less than 100. In the 101 to 500 group 60% assign responsibility. This increases again to 71.2% in the 1,000 to 5,000 group and reaches 93.5% in the 5,000+ group. Only two employers (6.5%) in the 5,000+ group have not assigned a specific responsibility.

On a provincial basis (Table 39) Quebec heads the list with assignment of responsibility in 90.9% of the cases, followed by Alberta at 70.8%, Ontario at 70.6% and Nova Scotia at 32.3%.

Table 40 illustrates the delegation of Manpower Planning Responsibility in each Industrial Sector. Only three sectors, namely, Manufacturing/Machine Equipment, Manufacturing/Automotive and Fishing delegate responsibility in 50% or less of the cases. The remainder range from 62.5% in Textiles to 100% in Manufacturing/Aerospace and Finance/Insurance/Real Estate, respectively.

TABLE 38. MANPOWER PLANNING/RESPONSIBILITY/PROVINCIAL SIZE

	Not Assigned		Individual		Dept.		Total	
	#	%	#	%	#	%	#	%
Not reported	-	-	2	100.0	-	-	2	1.4
To 100	3	60.0	2	40.0	-	-	5	3.4
101 - 500	12	40.0	11	36.7	7	23.3	30	20.7
501 - 1000	7	38.9	7	38.9	4	22.2	18	12.4
1001 - 5000	17	28.8	28	47.5	14	23.7	59	40.7
5001 -	2	6.5	12	38.7	17	54.8	31	21.4
Total	41	28.3	62	42.8	42	29.0	145	100.0

TABLE 39. MANPOWER PLANNING/RESPONSIBILITY/PROVINCE

	Not Assigned		Specific Individual		Specific Department		Total	
	#	%	#	%	#	%	#	%
Alberta	7	29.2	13	54.2	4	16.7	24	16.6
Ontario	15	29.4	25	49.0	11	21.6	51	35.2
Quebec	4	9.1	15	34.1	25	56.8	44	30.3
Nova Scotia	15	57.7	9	34.6	2	7.7	26	17.9
Total	41	28.3	62	42.8	42	29.0	145	100.0

TABLE 40. MANPOWER PLANNING RESPONSIBILITY/SECTOR

Industrial Sector	Not Assigned		Individual		Department		Total	
	#	%	#	%	#	%	#	%
Energy/ Petrochem.	3	16.7	10	55.6	5	27.8	18	12.4
Mnf. Machine Equipment	6	50.0	3	25.0	3	25.0	12	8.3
Electronics	1	9.1	7	63.6	3	27.3	11	7.6
Mining/ Smelting	4	33.3	7	58.3	1	8.3	12	8.3
Forest Products	4	33.3	4	33.3	4	33.3	12	8.3
Trade	3	27.3	3	27.3	5	45.5	11	7.6
Mnf./ Automotive	8	72.7	2	18.2	1	9.1	11	7.6
Mnf./ Aerospace	-	-	6	60.0	4	40.0	10	6.9
Construction	2	22.2	4	44.4	3	33.3	9	6.2
Transport/ Communic.	2	22.2	2	22.2	5	55.6	9	6.2
Textiles	3	37.5	4	50.0	1	12.5	8	5.5
Service	1	20.0	2	40.0	2	40.0	5	3.4
Finance, Insur./ Real Estate	-	-	2	40.0	3	60.0	5	3.4
Fishing	2	50.0	2	50.0	-	-	4	2.8
Other	2	25.0	4	50.0	2	25.0	8	5.5
Total	41	28.3	62	42.8	42	29.0	145	100.0

G.5 Synthesis of the Variables of Industrial Sector/ Size by Province

Having reviewed these variables on a number of different aspects we can now make some summaries concerning each of the variables.

We can first look at the various provinces and develop some points concerning the characteristics of the planning that takes place in that province.

G.5 A. Province

In considering Alberta we find that there is a high level of all types of planning within the province. This planning in the manpower area also tends to have long time frames (4.6 median years). The emphasis is on planning of managerial/ professional/technical and trades personnel. The survey sample is dominated by four industries who in turn, were dominated by large companies. Responsibility for Manpower Planning was specifically assigned in 70% of the firms.

Ontario on the other hand is the lowest in the percentage of overall planning but that is the result of one industry located in Ontario that has the least amount of planning (Manufacturing/ Machine Equipment). Ontario overall had the second longest time frames (4.3 median years). Ontario also had the largest variety and mixture of industries Large companies did dominate the survey but there were also more small companies in Ontario than in other provinces. The emphasis for planning of the various categories was similar in Ontario as to Alberta. Responsibility for Manpower Planning was assigned 70% of the time in Ontario as it was in Alberta.

Quebec also had a mixture of industries that tended towards large firms. The mix was not as great as was Ontario and there was emphasis on different industries. In particular the Transportation/Communications, Textiles, and Finance/ Insurance/Real Estate sectors were among the

mixture in Quebec and did not exist in Ontario to the same degree. The median time frames for planning in Quebec were 1.3 years. This is a substantial difference between Quebec and the previous two provinces. There was a much greater emphasis on the planning of clerical and unskilled workers in Quebec as opposed to those categories in Ontario and Alberta. The types of industries involved could explain this phenomena. The responsibility for planning was more frequently assigned (80%) of the firms in Quebec than in all other provinces.

Nova Scotia was dominated by four industries - one had a preponderance of small companies, two were balanced between large and small and one had a dominance of larger companies. The median time frame for their planning was 2.0 years. This could be accounted for by the types of industries. The Manufacturing/Machine Equipment industry was the one which tended to plan the least. There was considerably less management and professional technical planning taking place in Nova Scotia compared to any other province. Conversely there was a greater emphasis on unskilled and semi-skilled, trades and clerical planning. This would appear to be dictated by the needs of the work place. Responsibility for Manpower Planning tends to be assigned relatively infrequently in Nova Scotia (42% of firms only).

This review of these factors points out there are considerable differences in the various provinces. These differences could result from a reflection of the needs in that particular province and the industries that are dominant in that province. For instance in Nova Scotia the labour market would dictate a need for more planning of the clerical, skilled and semi-skilled components and less for management. Management mobility is not as great and opportunities for management are not as great. The labour market then would suggest that planning be carried out at the lower end.

In Quebec the labour market tends to be a more closed market than in other regions. The requirements for skilled, semi-skilled and clerical people are greater. There is also a dominance of the Service and Finance/Insurance/Real Estate industries which require these types of skills. Because of this particular labour market, it may be possible to plan for the shorter time frames.

Ontario had a much wider variety of industries and still showed long time frames for planning. This could be the result of the interaction of those industries and the particular Ontario labour market. The skills are in short supply and require longer lead times.

Alberta is a dynamic, booming economy also with a high requirement for skills that are in short supply. That labour market combined with the requirements of the four dominant industries in this survey could be a factor in the results shown in the survey.

G.5 B. Size of Firms by Numbers Employed

As we reviewed the various elements of the report, size of firm has been a factor. Larger firms tend to do Strategic Planning, Operations Planning and Manpower Planning of the sophisticated variety. As well we have seen the time frames are considerably longer for those firms with more than 1,000 people as opposed to those with less than 1,000. As we consider the raw data it does appear that size is a dominant variable.

G.5 C. Industrial Sector

Throughout the study we have made a series of comments concerning each of the industrial sectors. To attempt to bring these comments together we reviewed various factors, assigned them values and charted them as will be found in Table 41. This is a rudimentary comparison to allow us to make relative comments about each industry. The factors and their definitions for this table follow on page 72:

TABLE 41. FACTOR ANALYSIS

Industrial Sector	Dominance	Strategic Plg.	Operations Plg.	Strategic	Operations	Sophistication	Time Frames	Responsibility
Energy/ Petrochem.	L	H	H	H	H	H	L	H
Mnf. Machine Equipment	S	L	L	L	L	L	S	L
Electronics	B	L	H	L	H	B	A	H
Mining/ Smelting	L	A	H	L	H	L	L	L
Forest Products	L	A	H	L	H	H	A	L
Trade	L	H	H	L	H	B	L	H
Mnf./ Automotive	L	L	L	L	H	B	L	L
Mnf./ Aerospace	B	L	H	H	H	L	S	H
Construction	S	A	L	L	H	B	L	H
Transport/ Communic.	L	H	H	L	H	H	L	H
Textiles	B	L	H	L	H	L	S	L
Service	L	H	H	L	H	B	S	H
Finance, Insur./ Real Estate	L	H	H	H	H	H	A	H
Fishing	B	L	H	L	H	B	S	L
Other	L	H	H	H	H	H	A	H

In the first column we indicated the dominance of large or small companies in that industry or whether the industry in the survey could be considered as balanced with a relatively equal amount of companies above or below 1,000 employees.

L - Dominated by large firms

S - Dominated by small firms

B - Balanced between large and small firms

Strategic Planning - The survey indicated 58.4% of companies did Strategic Planning. For the purposes of the summary chart we have defined three categories. These are as follows:

Low (L) - less than 50% of companies in industry doing Strategic Planning;

Average (A) - 50% - 70% of companies in the industry doing Strategic Planning;

High (H) - over 70% of the companies in the industry doing Strategic Planning.

Operations Planning - We found that 95% of the companies were doing Operations Planning. To assign values to this we charted them as follows:

Low (L) - less than 95% of firms in the industry;

High (H) - more than 95% of firms in the industry doing Operations Planning.

Manpower Planning - Manpower Planning was looked at from a number of aspects. In terms of Strategic Manpower Planning we identified two categories as follows:

High (H) - more than 50% of firms in the industry doing Strategic Manpower Planning;

Low (L) - less than 50% of firms in the industry doing Strategic Planning.

Operations Manpower Planning - The same high and low categories were used but the definition was above or below 90% of firms as opposed to 50%.

Sophisticated Manpower Planning - If over 50% of the firms in the industry were doing sophisticated Manpower Planning we assigned a value of high.

If substantially less than 50% the value was low. In a few cases the industry was about evenly split between sophisticated and unsophisticated and we have shown this as balanced (B).

Time Frames - Overall time frames showed a median time of 2.2 years. In order to rank each industry we used the following scale:

Short (S) - 1 to 1.9 years;

Average (A) - 2.0 to 2.5 years;

Long (L) - 2.5 + years.

Responsibility Assigned - It was shown that the average across all industries was that 70% had specifically assigned the responsibility for Manpower Planning. For the purposes of the synthesis we indicated the following categories:

High (H) - greater than 70% of firms in that industry;

Low (L) - less than 70% of firms in that industry.

We are now able to make summary comments concerning each industry as it was found in this survey.

Energy/Petrochemical

This industry was dominated by large companies. It was found that there were high levels of Strategic, Operations and Manpower Planning. These tended to be sophisticated Manpower Plans with long time frames. The responsibility assignment was higher than other industries in every case.

Manufacturing/Machine Equipment

This industry was dominated by small companies. They had low levels of all types of planning with short time frames and low levels of assignments of responsibility.

Electronics

This industry was balanced between large and small companies. It showed low levels of Strategic Planning but high levels of Operations and Operations Manpower Planning. Sophistication was balanced between unsophisticated and sophisticated plans and the time frames were about average. The responsibility for Manpower Planning was assigned highly in this industry.

Mining/Smelting

This industry was dominated by large companies with an average level of Strategic Plans and a low level of Strategic Manpower Plans. However, it has a high level of Operating Plans and Operations Manpower Plans. The sophistication level was low but the time frames tended to be long. Responsibility was assigned in a relatively small amount in the companies.

Forest Products

This industry was dominated by a number of large companies and had an average amount of Strategic Plans but a low level of Strategic Manpower Plans. There was a high level of Operating Plans and a high degree of sophistication of their Operations Manpower Plans. Their time frames were close to the average but their assignment of responsibility was lower than average.

Trade

This industry was dominated by large companies with high levels of Strategic and Operations Plans. However, there were few Strategic Manpower Plans but a

high level of Operations Manpower Planning. Their sophistication was balanced between high and low and they tended to have long time frames. They had assigned the responsibility in a large number of cases.

Manufacturing/Automotive

This sector again was dominated by large companies. However, they had low levels of Strategic and Operations Planning and low levels of Strategic Manpower Planning. They did have high levels of Operations Manpower Planning with a balance between sophisticated and unsophisticated companies. Their time frames tended to be long but the assignment of Manpower Planning responsibility tended to be low.

Manufacturing/Aerospace

This industry had a balance between large and small companies. It had low levels of Strategic Planning but high levels of Operations Planning including high levels of Operations Manpower Planning. Strangely enough with relatively low levels of Strategic Planning those companies that did Strategic Planning included Strategic Manpower Planning. The sophistication levels tended to be low. The time frames tended to be short but the responsibility was assigned in most cases.

Construction

Construction shows as being dominated by small companies. However, our previous proviso as to the real size of Construction companies must be kept in mind. The Strategic Planning area showed as about average and low levels of Strategic Manpower Planning. Similarly there were low levels of Strategic Manpower Planning but fairly high levels of Operations Manpower Planning. They had a balance between sophisticated and unsophisticated Manpower Plans. They did show longer than average time frames and high levels of assignment of responsibility.

Transport/Communications

This industry again was dominated by large companies. It had high levels of Strategic and Operations Planning although they did not include Manpower Planning as part of their Strategic Plan. Their sophistication in Operations Manpower Planning was very high and they had long time frames. The firms had assigned responsibility for Manpower Planning in most cases.

Textiles

In terms of size, the Textile companies were balanced between small and large. They had very low levels of Strategic Planning but high levels of Operations Planning. This same condition held true for the two types of Manpower Planning. Their sophistication in Manpower Planning was relatively low and their time frames were very short. At the same time they had a low level of specific assignment of responsibility for Manpower Planning.

Service

Service was dominated by large companies that showed high levels of Strategic and Operations Planning. Again the Manpower Plans were not often included in the Strategic Plans but there was a high level of Operations Manpower Planning. Their level of sophistication was relatively balanced and their time frames for planning tended to be short. There was a high level of responsibility assigned for the planning.

Finance/Insurance/Real Estate

Our survey was done in many large firms who showed high levels of Strategic and Operations Plans. In their case they included the Manpower Plans in both Strategic and Operations Plans. They had a high level of sophistication with average median time frames and a high level of assignment of responsibility for their Manpower Planning.

Fishing

Fishing companies in the survey were balanced between those under 1,000 and those over 1,000. They had a very low level of Strategic Planning, but a high level of Operations Planning. They showed a balance in sophistication but based on short median time frames. They had assigned the responsibility for Manpower Planning less frequently than any other industry.

Other

A series of large firms again dominated this sector. The sector shows high levels of Strategic and Operations Plans and includes Manpower Plans as a part of both of those exercises on a relatively frequent basis. This sector showed high levels of sophistication with average time frames and high assignment of responsibility.

G.5 D. Syntheses of Size, Industry Sector and Province

Clearly then, as we look at these three factors we have an interplay between them. Certain industries tend to be sophisticated with long time frames, etc. In some cases, such as Alberta, those industries tend to dominate the provincial sample. At the same time we see clearly that in each industry the larger companies are doing more of the planning and doing it in a more sophisticated way. Those industries that are dominated by smaller companies in all cases are operating at the lower levels of sophistication. However, there are also some industries such as Mining/Smelting that are dominated by large companies but have relatively low levels of sophistication. At the same time the Mining/Smelting industry had one of the longer time frames for planning.

The data as presented would not tend to arrive at clear conclusions. As we look through the study, there is an apparent predominance of size as being the critical variable. In order to develop a methodology of separating and trying to weigh these three variables two different attempts were

undertaken. The first of these attempts was undertaken by the Task Force itself and their report is shown as Appendix IX to this report. In summary, they have said the following:

"The Individual Effects

We focused on determining the effects of Size, Industry Sector, and Province on the number of years of Manpower Planning.

Raw Data

In order to examine the variation of the extensiveness of Manpower Planning with each of the above variables, we set up three "two-way" tables.

Table 1 - Planning as a Function of Location and Firm Size;

Table 2 - Planning as a Function of Industry Sector and Province;

Table 3 - Planning as a Function of Firm Size and Industry Sector.

Data in these tables represent median years of Manpower Planning - we used medians as a robust estimator of central tendency - avoiding to some degree the bias introduced by outlying results. From this raw data, certain tendencies are evident:

. The number of years of Manpower Planning increases with the size of the firm. Examining the results of Tables 1 and 3 indicates that planning is more extensive in firms having more than 1,000 employees;

. Manpower Planning is more extensive in the provinces of Alberta and Ontario than in Quebec and Nova Scotia (refer to Tables 1 and 2);

. Manpower Planning is more extensive in firms in the high technology industries and in natural resources (refer to Tables 2 and 3).

> In reaching conclusions based on the raw data, however, we are concerned that, because of the interrelationship of the three variables, our conclusions from the "two-way" analysis could be erroneous because of the interference of the third variable. Consequently, we used more complex statistical techniques to arrive at conclusions for individual variables.

Conclusions

> It is most difficult given the collinearity between the variables to separate clearly the effects of individual variables. Only by having a larger, randomly distributed sample and possibly relying on more sophisticated statistical procedures could one get at the effects more clearly. Novertheless, in spite of the difficulties it is clear that the sample of firms interviewed in Alberta and Ontario did much more extensive Manpower Planning (perhaps because of the tighter labour markets) than those in Quebec and Nova Scotia. Because of the collinearity between size and industry sectors it is not possible to draw any inferences from this analysis. Without access to more data, we would, however, tend to rely on the inferences discussed earlier when we examined the raw data."

As well as this attempt by the Task Force we utilized a similar "median polish" technique. This was designed to review the data attempting to delineate which of the three variables of Size, Industry Sector or Province of operation were having the greatest impact on Manpower Planning.

The following is based on Tables 1, 2 and 3 in the Task Force analysis (See Appendix IX) but taken a step further. As a result of that analysis we could come to the following conclusions:

1. TABLE 1: Row Effects 3.129 > Factor 3x
   Column Effects 1.051

   Province is more important than size

2. TABLE 2: Row Effects 3.450 > Factor 1.7x
   Column Effects 2.000

   Industry is more important than province

3. TABLE 3: Row Effects 3.516 > Factor 1.9x
   Column Effects 1.900

   Industry is more important than size

If the output of the median polish were to be accepted these would have been the conclusions. However, the residual values remain very high which suggests extreme variability in the data, and other factors besides size, province and industry influencing the firm's planning.

A problem with this data is that the industry groupings - while meaningful to the researcher - conceal the fact that there is enormous diversity within these groupings. For example:

Energy/Petrochemical:

- Hydro Companies
- Energy Exploration Companies
- Refineries
- Chemical Plants

) We are trying to develop one number to represent all of these industries.

Mining/Smelting:

- Existing Mines
- Exploration Projects
- Smelters

There is also a coupling effect between some rows and columns in the tables, i.e.

TABLE 1:	Alberta	0 - 100
	Nova Scotia	501 - 1,000
TABLE 2:	Alberta	Transport/Communications (10)
	Ontario	" "
TABLE 3:	Mining/Smelting	0 - 100, 501 - 1,000
	Construction	0 - 100

This coupling effect causes residuals in the median polish analysis tables to be too large to be able to give any validity to row and column effect figures.

In order to take this analysis further we utilized the "midspread" that was produced by the median polishes. The following table plots those results:

PLANNING BY INDUSTRY

MEDIAN YEARS		VARIABILITY LOW $dQ \leq 2$	MEDIUM $dQ = 3$	HIGH $dQ = 4$
	LOW ≤ 2 Yrs.	Textiles Service Fishing	Mnf./Machine Equipment	Forest Products Mnf./Aerospace Finance/Insur.
	MEDIUM $>2<3.5$ Yrs.	Construction Transport/ Communic.	Electronics	Trade Other
	HIGH ≥ 3.5 Yrs.			Energy/ Petrochem. Mining/ Smelting Mnf./Automotive

dQ = Midspread = $Q_u - Q_L$

Having plotted these results we can make some general conclusions concerning the reasons for the positioning of the various industries.

Textiles
Service
Fishing

Low Years:

Relatively stable market

Demand for unskilled labour; not in short supply

Minimal technological change

High similarity between firms

Energy/Petrochemical
Mining/Smelting
Mnf./Automotive

High Years:

Long lead times to introduce resource projects

Once operational, stable industries

Substantial tool up time involved

Variability:

Mix of industries within groupings i.e.,

Hydro vs Petrochemicals vs Refinery

Existing Mines vs New Ventures vs Smelters

Automotive: also mix of firms with entirel different project lines and degrees of susceptibility to market

Forest Products
Mnf./Aerospace
Finance/Ins.

Low Years:

Forest Products established industry, characteristic pattern

Finance/Insurance " " "

No shortage of manpower

Aerospace: volatile market conditions

High Variability:

Size of industry, market susceptibility

In a final attempt to develop some definite conclusions, the raw data was used to put the companies into new size groups. These groups plus their medians and mid spreads follow:

Size		Median	Mid-Spread
0 - 200	(very small)	1	5
201 - 500	(small)	1	2
501 - 1,500	(medium)	2	4
1,501 - 7,500	(large)	3	4
7,500 +	(very large)	3.5	4

These medians again suggest that the extent of planning depends on the size of the firm. However, the mid-spreads indicate large variations which are due to the mix of companies in each sector.

Using the above groups an attempt was made to look at each industrial sector. Unfortunately the cells become too small to develop any trends or conclusions.

VII. CONCLUSIONS

There is no doubt from the needs shown in this survey of 154 companies and the generally understood need from many other sources that there is a manpower problem in Canada. In the simplest form, this is showing itself by people in the work force who do not have the skills to do the jobs that are available.

In this study elements of corporate planning with particular emphasis on Manpower Planning were tested to determine the "State of the Art" in four provinces in Canada. The Manpower Planning system is the basis for decision making in many sectors. An appropriate plan that could have some reliability and validity could be utilized by the federal government and each of the provincial governments in their own planning. This would range from the direction of the education system, the apprenticeship system and the many other training systems to meet the needs of the work force that governments are required to fund. A more efficient Manpower Planning system would better meet the needs of the labour markets and at the same time allow governments to be more cost effective in utilizing their funding in a more directed fashion.

In the study three hypotheses have been tested. These could be stated as:

- the province in which a company is located is a significant factor in Manpower Planning;
- the industrial sector is significant in terms of Manpower Planning;
- the size of the firm as measured by the number of employees it has in its home province is a significant factor in Manpower Planning.

Visual inspection of the data indicates size as a vital factor. However, the attempted computer analysis shows industry and province as more critical. The analysis is however deficient because of limitations in the data.

It must be concluded that all three are important variables. These must be taken into account when making changes to improve Manpower Planning in Canada.

The province in which the firm is located tends to have an effect on the Manpower Planning process. This is a reflection of the needs and character of the labour market in that particular province. There were significant differences between provinces, many of which could be placed to size of firm or type of industry. Nevertheless, the actual approach to Manpower Planning is related to the needs of the labour market in that particular province.

The size of the firm is a factor. Size seems to dictate the amount and sophistication of the planning that takes place. Here again this is tempered by the labour market in at least the one example of Quebec. There are many large firms in Quebec who do Manpower Planning but their planning tends to be shorter term. This effectively reflects the current state of the labour market in Quebec. Alberta and Ontario while also being characterized by many large firms tended to have longer time horizons. Nova Scotia tends to have smaller firms. Planning is done in Nova Scotia but is emphasized in different categories of the work force and is also shorter term.

The sector of industry has a major impact. Each sector has its own characteristics. These characteristics impact on Manpower Planning. The requirements of Manpower Planning are geared to their currently perceived needs. The Energy/ Petrochemical industry has long time horizons and produces relatively long term sophisticated plans. The Textile industry has short time frames and relatively unsophisticated plans. Its manpower needs also are quite different from the Energy industry.

Ninety of the 154 firms in this survey prepare Strategic Plans five or more years into the future. Of these 90 companies, 69 include Manpower Plans in their Strategic Plans. There is a tendency for the larger companies to do more of the Strategic Planning and certainly more of the Strategic Manpower Planning.

One hundred and forty-seven of the 154 companies prepare an Operations Plan at least one year in the future. Of these, 145 prepare a written Manpower Plan as part of their Operating Plan. Seventy-six of those 145 Manpower Plans were judged on a series of criteria to be sophisticated Manpower Plans. The other 69 were more simplistic and based on other data and covered less of the categories. These were significantly different in a number of criteria from the sophisticated plans.

Manpower shortages have existed and the participants expect those shortages to increase in the 1980's. Specific areas of shortages are managerial, engineers, accountants, computer personnel and trades personnel. These shortages have occasioned significant cost to Canadian industry and that cost is anticipated to increase.

Participants are generally positive towards Manpower Planning. They do see some impediments to the process and see ways that it can be improved.

The government role is greeted with some limited enthusiasm on the part of the participants in the study. They believe that that should be a focused role improving both the quality and timeliness of the data that could be utilized for Manpower Planning. At this point in time relatively few government sources of data are utilized because of this untimeliness and poor quality.

Another suggested role for the government is to provide a small pool of expertise to increase the sophistication of Manpower Planning.

Despite the fact that some Manpower Plans exist that go as far as 10 years into the future, it appears that the participants have confidence in only the first two to three years of those plans. After that time the confidence level drops very markedly.

Manpower Planning tends to be done in the categories of employees most important to the particular industry or region. Where the labour market or the firms need dictate they tend to have longer time frames. The general emphasis is ranked ranging from managerial, professional/technical, trades, clerical to unskilled. However, in at least one region clerical personnel were ranked higher than this and in another there was less emphasis on the managerial/professional and more on the trades and unskilled or semi-skilled.

All three variables, the size of the firm, the province in which it is located and its industry are important. Each interacts with the other and there is no rank order that can be shown to be proven from this study. Size appears critical to the Strategic Planning area and certainly all large companies have Manpower Plans. The larger companies tend to be the ones with sophisticated Manpower Plans. At the same time the province of location appears important and there appear to be provincial labour markets at work. Industry sector is also important and indeed the requirements of the industry appear to establish certain Manpower Planning parameters for the firms within that industry.

VIII. PRESCRIPTION FOR PROGRESS

In light of the critical need to improve Manpower Planning capabilities in Canada, there is a need to take steps to improve the amount and type of data to be used for decision making. There is no reluctance on the part of participants in the survey to co-operate with both senior levels of government. However, there is a definite reluctance to see increased bureaucracies or roles where, in their opinion, there is not a likelihood of true progress being made. Only seven respondents in the survey utilize COFOR or FOIL, which indicates that these are neither well known nor useful tools in the planning process. There is a need then to substitute more effective mechanisms to gather the data and disseminate the information so that it will be used effectively.

The analysis of the survey gives three dimensions that are critical to developing an improved Canadian Manpower Planning system. The first of these is the provincial nature of planning and in particular the fact that planning seems to be related to specific labour markets. There may well be at least six distinct labour markets in Canada:

- British Columbia
- Alberta and the Prairies
- Ontario
- Quebec
- The Maritimes and
- Newfoundland

It would seem that the two senior levels of government should organize themselves into a co-ordinative role that relies on the direct participants of the labour market as the keys to development of a better system. This would require that the federal and provincial governments recognize that they are jointly involved in the manpower needs problems in Canada. They must put those needs ahead of limited considerations for jurisdictions. At this point they are shared jurisdictions and this prescription is

not undertaken as an effort to change that sharing. The effort should be towards developing the information data base and the planning process that will allow each to make more effective decisions within its own sphere.

One of the critical areas identified in the survey is that the large firms are the ones who are now involved in Manpower Planning and are doing it on an individual basis relatively well. Governments ought to tap this source of knowledge and expertise and utilize their influence to improve the system. It would be most effective to convince four of the employers with over 5,000 employees who are not now doing Manpower Planning (or who are doing it on short time frames), to begin planning efforts or to extend their time frames. This would be far more productive than convincing 40 employers with below 500 employees to introduce Manpower Planning sophistication when their requirements are considerably different.

At the same time there is an industry focus to current Manpower Planning. This "culture" of each industry to a large degree determines the quality and to some extent quantity of planning. It behooves the senior levels of government to nurture Industrial Sector efforts. Particularly where a sector has begun its own efforts these should be cultivated and assisted.

The three dimensions that the senior levels of governments should pay most attention to are: industrial sector; the size of organizations in Canada; and the regional nature of the labour markets. This would appear to dictate the formation of a labour market task group on a national basis supported by a regional labour market task group in each of the provinces. The initial thrust should be to bring together on a national basis those employers who employ over 5,000 employees. This group could be charged with the development of a data collection and information disseminating system that would be effective to share planning information among employers. It should be formed in such a fashion that it will not duplicate what currently exists. It should also be designed to replace that which exists which is not being effectively utilized.

Where industrial groupings exist on an organized basis these should be encouraged. With assistance and expertise (not by demands or more paper work) these natural industry groupings could develop the processes for their sector.

At the same time, on each provincial level there should be an effort underway jointly between the two senior levels of governments and all employers who employ 1,000 or more persons and who are not represented on the national group. These groups should identify the particular needs of their labour markets and expand upon the national data collection and dissemination system to have it work most effectively for them. In the case of some provinces, an extension to include Industry Associations that represent large numbers of firms who may not individually employ 1,000 employees, may be logical. This group of companies is relatively small; in the survey there is a nucleus of 31 companies in the over 5,000 bracket and another 59 spread between the four provinces in the 1,001 to 5,000 employee bracket. This regional focus should begin in the tight labour markets and gradually extend to those of lesser immediate need.

Concentrating in this fashion on the larger firms means dealing with those who already have some sophistication now and who can influence others. At the same time, it is a relatively small and workable group who could develop the required systems based on the various labour markets.

While this survey was only in four provinces, the same principles to improve Manpower Planning should be extended to the remaining provinces.

Such an approach should concentrate initially on the development of reliable data, over longer time frames. This should be undertaken for the benefits of planning for both the individual employers and for the requisite needs for the provincial and federal governments. At the same time it should not be a system that develops an extensive bureaucracy (as was a great fear in the survey). This would suggest limits on the number of personnel that should be involved in such an endeavour. In fact, it would be wise to establish limits such as a maximum staff of six (Ottawa) and three for each provincial group plus the necessary clerical staff. This would necessitate a high quality and calibre of person who could operate on a co-ordinating basis. They should obtain needed services from the existing agencies and work with the concerned parties to ensure that they develop the system, not the bureaucracy.

One concern is that there is another player who was not part of this survey but cannot be ignored. That is the Labour movement in Canada. Each group should ensure that the Labour movement is fully consulted. In some cases, such as the Construction industry, the Labour movement has extensive control over the training that takes place in that industry. There should be a requirement that there will be representation on the national group by the Canadian Labour Congress and within each province by the appropriate provincial labour groups.

No effective Manpower Planning system can be developed without involvement and assistance of organized labour, at least in its major spheres of influence.

To be effective, the two senior levels of government, management and labour must approach Manpower Planning with a view to co-ordinate efforts for effective results. This does not mean legislation but effective action based on enlightened self interest of all parties.

APPENDIX I. SUPPLEMENTARY QUESTIONNAIRE - ALBERTA PARTICIPANTS

Please complete and return to:

R.J. Clifford & Associates (1976) Ltd.
Suite 840
789 West Pender Street
Vancouver, B.C.
V6C 1H2

Company _____

1. Which of the following categories of employees do you compete for in other industries?

- Managerial ___
- Professional/Technical ___
- Clerical ___
- Skilled Trades ___
- Semi or Unskilled ___

2. What is the effect of industry stability on planning?

- No effect ___
- Less Planning ___
- More Planning ___
- Other (please explain) ___ _____

_____

_____

3. What is your firm's perception of its industry with respect to:

- growth rates (expectation per year) ___%
- technological change (if applicable - R & D budget as a % of sales) ___%

	Critical	Non-Critical
- International competitiveness	___	___
- markets	___	___
- Raw materials (availability)	___	___

4. Would you be prepared to give Manpower data on a totally confidential basis to:

	Yes	No
Provincial Government	___	___
Federal Government	___	___

If "Yes" from whom would they get this information?

Head Office	___	department	___	or position	___	
Regional Office	___	department	___	or position	___	
Branch/Local Office	___	department	___	or position	___	
Other (specify) _____	___	department	___	or position	___	

Please explain _____

_____

5. Please rate the usefulness of the following sources of information for manpower planning data:

	Don't Know	Not Used	Used Somewhat	Used Often	Very Valuable
Historical Data	___	___	___	___	___
Statistics Canada	___	___	___	___	___
Industry or Management Association Publications or data	___	___	___	___	___
C.O.F.O.R.	___	___	___	___	___
F.O.I.L.	___	___	___	___	___
Provincial Government Forecasts	___	___	___	___	___
Company Surveys	___	___	___	___	___
Consultants	___	___	___	___	___
Other _____	___	___	___	___	___
_____	___	___	___	___	___

6. Do you anticipate that manpower availability will be a problem in the 1980's?

	Yes	No		
	___	___		
what skills	_____		_____	_____
what location	_____		_____	_____

7. What will be the main trends that are going to impact on your business in the next decade?

Technology ___

International trade (world) ___

North American markets (Canada/U.S.) ___

Politics ___

Other specific _____ ___

8. What is the estimated accuracy of your Manpower Plan?

	Estimated Accuracy					
Forecast Year	± 10%	± 20%	± 30%	± 50%	± 75%	± 100%
1						
2						
3						
4						
5+						

APPENDIX II. GENERAL INTERVIEWING FORMAT

A) Background Corporate Data:

1. Company City Province

Official Interviewed

Name: Position:

2. Employment (Approximate Numbers)

	Province	Canada
Managerial		
Professional		
Clerical		
Hourly Skilled		
Hourly Semi or Unskilled	_____	_____

B) The Interview

Introduction

1. Please describe briefly the key changes you foresee in the next evolution of your industry over the next 10 years.

2. More specifically what is your perception with respect to:

   - growth rates (%/yr)
   - technological change
   - international competitiveness
   - markets
   - raw materials

Please comment on the stability you foresee in your industry. That is, what are the potential inter-year variations?

The Planning Process

Please describe your firm's planning (i.e. forecasting next X years) process. More specifically, that is the time horizon for the following types of plans (if relevant):

- capital budgets
- operating budgets
- R & D expenditures
- market forecasts
- manpower plans

Typically, how do ideas for a major expansion or retrenchment come up in your firm? How are they developed? Who is responsible? How long does it take normally from the point of initial conception until the ultimate decision is reached to proceed?

What is the frequency of revision of the foregoing plans?

Please describe the level of detail and how it varies with the time horizon.

Please discuss the accuracy you anticipate for your forecasts and how it varies with time?

Manpower Planning:

(Demand)

Has manpower availability been a significant concern to your firm in the past? If so, what particular skill levels were in short supply. In what locations?

Do you anticipate that manpower availability will be a problem in the 1980's? If so, again what skills are of concern? In what locations?

Does your firm have a manpower plan? If so, for which of the following skill categories does it exist?

- Managerial
- Professional
- Clerical
- Hourly Skilled
- Hourly Semi

(If applicable)

4. For what time frame does the manpower plans exist? How does this time frame vary with the skill levels?

How does the accuracy of the manpower plan vary with the time horizon?

Manpower Planning:

(Techniques)

1. Who establishes the assumptions regarding manpower plans?

2. Are these assumptions modified or expanded at other levels in the organization?

3. Do you use a manpower model? If so, please describe.

4. Do your manpower plans include possible reductions in the people needed?

5. At what level in the organization are projections in terms of people first made?

   - Are the projections in aggregate numbers or by type of skills?

   - If by type of skills is it generic (e.g. engineers) or specific (e.g. mechanical engineers)?

   - Do these projections include allowances for losses such as retirement, promotion, illness, quits, etc.? That is do you forecast the "flow" of new employees or the "stock" (i.e the numbers required)?

6. Are your manpower plans site specific or aggregated (i.e. entire company requirements aggregated?)

7. Who is responsible for translating manpower plans into action.

Manpower Planning

(Supply)

1. Please indicate the types of information you find are most appropriate with respect to labour supply. On what sources do you rely?

2. Is there a prediction of the future work force characteristics for the planning time period? If so, please describe how these predictions are developed? Does this prediction include:

   - skills available internally?
   - skills available provincially, regionally, nationally or internationally?

3. Are various strategies of manpower management considered and evaluated (e.g. training from within vs. outside hiring; promotion policies vs. direct entry, and so on)?

Government Role:

Please describe your perceptions of the appropriate government role in providing information inputs for corporate manpower planning.

Should the government improve the availability of information with respect to:

- skill demands by region
- skill supplies by region

3. Would you be prepared to provide your demand information on a totally confidential basis to government agency?

4. How could the government best influence:

   a) The extent to which data is created in the firm.

   b) The extent to which data is made available.

5. What would be the incremental workload on your staff to prepare a five year manpower forecast by skill category.

APPENDIX III. REACTIONS AND IMPEDIMENTS TO MANPOWER PLANNING

A. POSITIVE

Essential/critical/necessary/important/key: to success/survival/growth	82
More stability and better utilization of people through: less turnover, fewer layoffs, and systematic recruiting, training, promotions and employee development	44
Enables company to make better predictions and decisions about the future	25
A morale booster. Employees see opportunities through growth and progression.	14
Controls "fat" in the organization; improves productivity and efficiency; saves dollars	5
Allows an organization to get a better handle on quality and quantity	4
A means to increase customer satisfaction	2
Forces pro-active rather than reactive role.	2
Ties dollars to people. Performance oriented	2
An aid to the overall planning process.	1

B. NEGATIVE

Not credible because of poor forecasting often due to seat-of-the-pants planning or unforeseen external factors and/or economic conditions.	13
Difficult to justify to line management; acceptance without involvement; perceived as something other than normal business; "top down" imposition	

makes many feel they are not participants; must reflect reality and participation and not be left to staff group. 12

Not practical for long term. 8

Misuse through lack of understanding; plans not disclosed to employees; selfish managers hang on to "fast trackers"; difficult to match requirements with employee expectations. 8

Process is tedious; requires ongoing effort; not properly developed; too many surveys. 3

Not necessary because of size; no value in a static organization. 3

Guidelines sometimes impair flexibility. 2

Process does not solve fundamental problem of supply. 2

Seen as a tool and approached too mechanically; people prone to use simple extrapolation. 1

Too wide a delegation of responsibility. 1

Academics too optimistic about long term, assumptions not valid. 1

Not effectively monitored. 1

Tends to ignore internal resources. 1

C. IMPEDIMENTS TO MANPOWER PLANNING

1. Management Attitudes (63)

- Not a perceived need; company has been successful without it. 19

- Lack of understanding by people not close to process; skeptical; perceived lack of flexibility. 16

- Lack of commitment at senior level; inability to get management to recognize its importance; resistance to change. 16

- Time, detail, paperwork unpleasant to some; interferes with more exciting things. 6

- Management maturity; planning is threatening to some (loss of jobs); reluctance to see their efforts to train and develop advantageous to others. 3

- An exercise in futility. 1

- Management unrealistic; don't trust forecasted labour shortages. 1

- Pre-judgement made about existing personnel (preconceived ideas make it difficult to accept plan). 1

2. Resources (31)

- Lack of financial and/or human resources (including) expertise to do jobs properly. 31

3. Business Developments (21)

- Unforeseen developments ("the unknown") such as market fluctuations, acquisitions or merger, new oil field. 21

4. Shortages (19)

Shortages in many manpower categories result in raiding; the result is high turnover, higher salaries/wages, but no increase in labour pool. 19

5. Political (13)

Uncertainty based on legislation, Federal and Provincial Government relations, government action or inaction. 9

International relations	2
Portable pension plans	1
Lack of direction and coordination by educators	1

6. Information (12)

Poor data about manpower availability and requirements (internal and external).	8
Poor in-house communication; many don't see results; difficulty of coordination in a large spread out company.	4

7. Social Values (10)

Lack of mobility and desire to move	3
Attitude of workers generally	2
Union attitudes	2
Two-career families	1
Job sharing	1
Changes will impact on numbers. Decreasing productivity well mean more people required to do the same job.	1

8. Organization (6)

Company size (small) makes it unnecessary	4
Seasonal and cyclical nature of business	1
Company reorganization	1

9. Technological Change (2)

Rapid changes results in redundancy and/or obsolescent work force	2

10. Other (3)

Cost of relocating personnel	3

APPENDIX IV. MANAGERIAL MANPOWER PLANNING TIME FRAMES

	Not Done		1 Yr.		2 Yrs.		3 Yrs.		4 Yrs.		5 Yrs.		7 Yrs.		10 Yrs.		Row Total	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Alberta	2	8.3	6	25.0	2	8.3	-	-	1	4.2	10	41.7	1	4.2	2	8.3	24	16.6
Ontario	4	7.8	10	19.6	5	9.8	6	11.8	2	3.9	22	43.1	1	2.0	1	2.0	51	35.2
Quebec	3	6.8	24	54.5	5	11.4	8	18.2	-	-	4	9.1	-	-	-	-	44	30.3
Nova Scotia	7	26.9	5	19.2	4	15.4	5	19.2	-	-	5	19.2	-	-	-	-	26	17.9
Total	16	11.0	45	31.0	16	11.0	19	13.1	3	2.1	41	28.3	2	1.4	3	2.1	145	100.0

	Not Done		1 Yrs.		2 Yrs.		3 Yrs.		4 Yrs.		5 Yrs.		7 Yrs.		10 Yrs.		Total	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Not Reported	-	-	-	-	-	-	-	-	-	-	2	100.0	-	-	-	-	2	1.4
To 100	-	-	3	60.0	-	-	-	-	-	-	1	20.0	-	-	1	20.0	5	3.4
101 - 500	7	23.3	9	30.0	5	16.7	6	20.0	-	-	2	6.7	1	3.3	-	-	30	20.7
501 - 1000	2	11.1	6	33.3	4	22.2	-	-	1	5.6	4	22.2	-	-	1	5.6	18	12.4
1001 - 5000	6	10.2	17	28.8	4	6.8	9	15.3	2	3.4	19	32.2	1	1.7	1	1.7	59	40.7
5001 -	1	3.2	10	32.3	3	9.7	4	12.9	-	-	13	41.9	-	-	-	-	31	21.4
Total	16	11.0	45	31.0	16	11.0	19	13.1	3	2.1	41	28.3	2	1.4	3	2.1	145	100.0

APPENDIX V. PROFESSIONAL/TECHNICAL MANPOWER PLANNING TIME FRAMES

	Not Done		1 Yr.		2 Yrs.		3 Yrs.		4 Yrs.		5 Yrs.		7 Yrs.		10 Yrs.		Row Total	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Alberta	3	12.5	6	25.0	2	8.3	-	-	1	4.2	10	41.7	1	4.2	1	4.2	24	16.6
Ontario	6	11.8	12	23.5	4	7.8	5	9.8	2	3.9	20	39.2	1	2.0	1	2.0	51	35.2
Quebec	6	13.6	21	47.7	4	9.1	9	20.5	-	-	4	9.1	-	-	-	-	44	30.3
Nova Scotia	7	26.9	5	19.2	6	23.1	4	15.4	-	-	4	15.4	-	-	-	-	26	17.9
Total	22	15.2	44	30.3	16	11.0	18	12.4	3	2.1	38	26.2	2	1.4	2	1.4	145	100.0

	Not Done		1 Yrs.		2 Yrs.		3 Yrs.		4 Yrs.		5 Yrs.		7 Yrs.		10 Yrs.		Total	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Not Reported	-	-	-	-	-	-	-	-	-	-	2	100.0	-	-	-	-	2	1.4
To 100	2	40.0	1	20.0	-	-	-	-	-	-	1	20.0	-	-	1	20.0	5	3.4
101 - 500	8	26.7	7	23.3	5	16.7	6	20.0	-	-	3	10.0	1	3.3	-	-	30	20.7
501 - 1000	2	11.1	7	38.9	5	27.8	-	-	1	5.6	3	16.7	-	-	-	-	18	12.4
1001 - 5000	8	13.6	16	27.1	4	6.8	9	15.3	2	3.4	18	30.5	1	1.7	1	1.7	59	40.7
5001 -	2	6.5	13	41.9	2	6.5	3	9.7	-	-	11	35.5	-	-	-	-	31	21.4
Total	22	15.2	44	30.3	16	11.0	18	12.4	3	2.1	38	26.2	2	1.4	2	1.4	145	100.0

APPENDIX VI. CLERICAL MANPOWER PLANNING TIME FRAMES

	Not Done		1 Yr.		2 Yrs.		3 Yrs.		4 Yrs.		5 Yrs.		7 Yrs.		10 Yrs.		Row Total	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Alberta	10	41.7	5	20.8	1	4.2	-	-	1	4.2	5	20.8	1	4.2	1	4.2	24	16.6
Ontario	20	39.2	8	15.7	4	7.8	4	7.8	2	3.9	13	25.5	-	-	-	-	51	35.2
Quebec	12	27.3	24	54.5	2	4.5	3	6.8	-	-	3	6.8	-	-	-	-	44	30.3
Nova Scotia	10	38.5	7	26.9	3	11.5	3	11.5	-	-	3	11.5	-	-	-	-	26	17.9
Total	52	35.9	44	30.3	10	6.9	10	6.9	3	2.1	24	16.6	1	0.7	1	0.7	145	100.0

	Not Done		1 Yrs.		2 Yrs.		3 Yrs.		4 Yrs.		5 Yrs.		7 Yrs.		10 Yrs.		Total	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Not Reported	2	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1.4
To 100	3	60.0	1	20.0	-	-	-	-	-	-	-	-	-	-	1	20.0	5	3.4
101 - 500	13	43.3	10	33.3	3	10.0	2	6.7	-	-	1	3.3	1	3.3	-	-	30	20.7
501 - 1000	6	33.3	7	38.9	2	11.1	-	-	1	5.6	2	11.1	-	-	-	-	18	12.4
1001 - 5000	20	33.9	16	27.1	4	6.8	5	8.5	2	3.4	12	20.3	-	-	-	-	59	40.7
5001 -	8	25.8	10	32.3	1	3.2	3	9.7	-	-	9	29.0	-	-	-	-	31	21.4
Total	52	35.9	44	30.3	10	6.9	10	6.9	3	2.1	24	16.6	1	0.7	1	0.7	145	100.0

APPENDIX VII. SKILLED MANPOWER PLANNING TIME FRAMES

	Not Done		1 Yr.		2 Yrs.		3 Yrs.		4 Yrs.		5 Yrs.		10 Yrs.		Row Total	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Alberta	7	29.2	5	20.8	1	4.2	-	-	1	4.2	9	37.5	1	4.2	24	16.6
Ontario	13	25.5	12	23.5	4	7.8	4	7.8	3	5.9	15	29.4	-	-	51	35.2
Quebec	7	15.9	26	59.1	2	4.5	5	11.4	-	-	4	9.1	-	-	44	30.3
Nova Scotia	3	11.5	12	46.2	4	15.4	4	15.4	-	-	3	11.5	-	-	26	17.9
Total	30	20.7	55	37.9	11	7.6	13	9.0	4	2.8	31	21.4	1	0.7	145	100.0

	Not Done		1 Yrs.		2 Yrs.		3 Yrs.		4 Yrs.		5 Yrs.		10 Yrs.		Total	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Not Reported	2	100.0	-	-	-	-	-	-	-	-	-	-	-	-	2	1.4
To 100	-	-	3	60.0	-	-	-	-	-	-	1	20.0	1	20.0	5	3.4
101 - 500	8	26.7	14	46.7	2	6.7	3	10.0	-	-	3	10.0	-	-	30	20.7
501 - 1000	3	16.7	9	50.0	3	16.7	-	-	1	5.6	2	11.1	-	-	18	12.4
1000 - 5000	11	18.6	18	30.5	5	8.5	7	11.9	2	3.4	16	27.1	-	-	59	40.7
5001 -	6	19.4	11	35.5	1	3.2	3	9.7	1	3.2	9	29.0	-	-	31	21.4
Total	30	20.7	55	37.9	11	7.6	13	9.0	4	2.8	31	21.4	1	0.7	145	100.0

APPENDIX VIII. SEMI OR UNSKILLED MANPOWER PLANNING TIME FRAMES

	Not Done		1 Yr.		2 Yrs.		3 Yrs.		4 Yrs.		5 Yrs.		Row Total	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Alberta	14	58.3	4	16.7	1	4.2	-	-	1	4.2	4	16.7	24	16.6
Ontario	19	37.3	10	19.6	4	7.8	4	7.8	2	3.9	12	23.5	51	35.2
Quebec	8	18.2	27	61.4	3	6.8	3	6.8	-	-	3	6.8	44	30.3
Nova Scotia	2	7.7	14	53.8	5	19.2	3	11.5	-	-	2	7.7	26	17.9
Total	43	29.7	55	37.9	13	9.0	10	6.9	3	2.1	21	14.5	145	100.0

	Not Done		1 Yrs.		2 Yrs.		3 Yrs.		4 Yrs.		5 Yrs.		Total	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Not Reported	2	100.0	-	-	-	-	-	-	-	-	-	-	2	1.4
To 100	3	60.0	2	40.0	-	-	-	-	-	-	-	-	5	3.4
101 - 500	8	26.7	15	50.0	3	10.0	2	6.7	-	-	2	6.7	30	20.7
501 - 1000	4	22.2	9	50.0	3	16.7	-	-	1	5.6	1	5.6	18	12.4
1000 - 5000	16	27.1	18	30.5	6	10.2	5	8.5	2	3.4	12	20.3	59	40.7
5001 -	10	32.3	11	35.5	1	3.2	3	9.7	-	-	6	19.4	31	21.4
Total	43	29.7	55	37.9	13	9.0	10	6.9	3	2.1	21	14.5	145	100.0

APPENDIX IX. CEIC TASK FORCE ANALYSIS

1. Background

In order to generalize on the findings with respect to Manpower Planning it was necessary to attempt to distinguish independently the individual effects of province, firm size, and industry sector. In limiting our analysis to only these three variables, it is recognized that there exist many other factors that would influence the degree of planning which we have not been able to consider.

It is also very difficult to select a variable that measures the "degree of Manpower Planning". Earlier we have indicated that the concept of Manpower Planning is very nebulous - different definitions exist for many persons. In addition, the usefulness of particular types of Manpower Planning data will vary depending on the type of firm; it will also differ depending on whether it is being used by companies or by government.

It was necessary, however, for us to choose an indicator - albeit imperfect - to get both overall impressions as well as to make intergroup comparisons. In this respect, we have chosen the number of years of planning as an index of the extent of Manpower Planning.

2. Sample

Earlier in the report we described the choice of our sample of 154 firms in some detail. Here, we reflect briefly on the sample from the perspective of its impact on our ability to analyze the impacts of different variables in explaining the effects on planning.

First, our choice of size of firms was not distributed at random manner between provinces. Figure No. 1 illustrates the significant interprovincial differences The Nova Scotia sample was concentrated in small firms, the Ontario sample in large firms. Thus, given the nature of the firms existing in the different provinces it was not possible to get the random size distribution we desired.

Second, in considering the distribution of the size of firms across industry sectors again we find that the

distribution is far from random. Our sample of construction firms contained many small enterprises; our sample of finance firms included a concentration of large firms. The marked differences in the distribution of the size of firms by industry sector is also illustrated in Figure No. 4. Again, the differences in the makeup of the industries prevented us from choosing a representative sample that, at the same time, was random with respect to size across sectors.

Third, the makeup of the different regional economies resulted in our choosing industry sectors that - while representative of the provincial economies - did not result in a random distribution of sectors by province (refer to Figure No. 3).

In sum, our choice of the sample does not lend itself well to separating out the effects of size, province and industry. In the upcoming section, however, we describe our attempts to determine the individual effects. This work will complement the bivariate analysis presented earlier.

3. The Individual Effects

We focus on determining the effects of size, industry sector, and province on the number of years of Manpower Planning.

Raw Data

In order to examine the variation of the extensiveness of Manpower Planning with each of the above variables, we set up three "two-way" tables.

Table 1 - Planning as a Function of Location and Firm Size;

Table 2 - Planning as a Function of Industry Sector and Province;

Table 3 - Planning as a Function of Firm Size and Industry Sector.

Data in these tables represent median years of Manpower Planning - we used medians as a robust estimator of central tendency - avoiding to some degree the bias introduced by

outlying results. From this raw data, certain tendencies are evident:

- The number of years of Manpower Planning increases with the size of the firm. Examining the results of Tables 1 and 3 indicates that planning is more extensive in firms having more than 1,000 employees;
- Manpower Planning is more extensive in the provinces of Alberta and Ontario than in Quebec and Nova Scotia (refer to Tables 1 and 2);
- Manpower Planning is more extensive in firms in the high technology industries and in natural resources (refer to Tables 2 and 3).

In reaching conclusions based on the raw data, however, we are concerned that, because of the interrelationship of the three variables, our conclusions from the "two-way" analysis could be erroneous because of the interference of the third variable. Consequently, we used more complex statistical techniques to arrive at conclusions for individual variables.

TABLE 1. PLANNING AS A FUNCTION OF LOCATION AND FIRM SIZE

(Data represent median years of Manpower Planning)

PROVINCE	1-100	101-500	501-1,000	1,000-5,000	5,000
Alberta	7	2.25	3	4.58	5
Ontario	3	2.5	2	4.63	4.56
Quebec	1	1.3	1.13	1.35	1.36
Nova Scotia	1	2.2	4.5	1.5	-

Note: (blank cell)

TABLE 2. PLANNING AS A FUNCTION OF INDUSTRIAL SECTOR/PROVINCE

(Data Represent Median Years of Manpower Planning)

Industrial Sector	Province			
	Alberta	Ontario	Quebec	Nova Scotia
Energy/ Petrochem.	4.6	4.9	1.25	5
Mnf.Machine Equipment	3	2	1.2	1.5
Electronics	-	3	1.5	3
Mining/ Smelting	5.2	1.3	2	3
Forest Products	-	1.5	3	4.5
Trade	1	4.88	1.25	3
Mnf./ Automotive	-	4.5	1.25	3.5
Mnf./ Aerospace	-	2	1.25	1
Construction	1.5	3	1	1
Transport/ Communic.	5	-	2	2
Textiles	-	-	1.13	2
Service	-	3	1	1
Finance,Insur./ Real Estate	-	5	1.25	-
Fishing	-	-	1	1
Other	2	4.5	1	-

Note: (denotes blank cell)

TABLE 3. PLANNING AS A FUNCTION OF FIRM SIZE/INDUSTRIAL SECTOR

Industrial Sector	Firm Size (No. of Employees)				
	100	101-500	501-1,000	1,000-5,000	5,000
Energy/ Petrochem.	-	1	1	4.75	5
Mnf.Machine Equipment	1	2	-	2	-
Electronics	1	3	1.25	2.25	3
Mining/ Smelting	7	5	-	4.75	3
Forest Products	-	2	5	4.5	1.17
Trade	-	-	3	2.5	4.67
Mnf./ Automotive	-	-	3.5	4.75	1
Mnf./ Aerospace	-	1.25	2	3	1.25
Construction	5	2.83	1	1	-
Transport/ Communic.	1	3	1	3	1.75
Textiles	1	1.25	1.5	2	-
Service	-	-	-	1.17	1
Finance,Insur./ Real Estate	-	-	5	1	2
Fishing	-	1	-	1	-
Other	-	1.5	-	1	4.83

Note: (denotes blank cell)

A More Detailed Analysis

In order to examine the individual effects in greater detail, we used an approach of "positive additive fits" in which the underlying impacts of particular valuables are derived as follows:

1. The data is arrayed in two-way tables using the medians (as already described in Tables 1, 2 and 3.);

2. Iteratively the medians are removed by rows and by columns until no further improvements are possible;

3. The residuals are examined for any patterns. The impacts of the elimination of columns and row medians on the variance of the data is calculated.

The result of the foregoing process provides the following for the analysis of pairs of data:

(a) Size-Province Effects

Table 4 illustrates that the median years of Manpower Planning is significantly higher (3.4 years) in Alberta than in Nova Scotia (2.3 years) or in Quebec (1.0 years). The planning horizon is also appreciably longer for firms having more than 1,000 to 5,000 employees; 4.2 years for firms with over 5,000 employees versus about 2.5 years for firms having less than 1,000 employees.

TABLE 4. PROVINCE/PROVINCIAL SIZE

1.0	Province	Median Years
	Alberta	3.4
	Ontario	3.0
	Quebec	1.0
	Nova Scotia	2.3
2.0	Firm-Size (No. of Employees)	Median Years
	0-100	2.7
	100-500	2.4
	501-1,000	2.5
	1,000-5,000	3.4
	5,001	4.2
3.0	Over-all Median: 2.7 years	
4.0	Variance Removed: 50%	

(b) Industry/Size effects

When we focus on industry and size (Table 5), we find that the size variable has much less impact - except for the very small firms the median is consistent at about two years of planning.

Also when we consider the Industrial Sector effects we find little difference between sectors with the exception of Mining/Smelting (median - 4.8 years).

Using these two variables only about 20% of the variance is removed.

(c) Industry/Province Effects

Focusing on industry and province effects we find that the extensiveness of Manpower Planning is much greater in Alberta and Ontario than in Nova Scotia and Quebec.

The industry effects indicate much more extensive planning in the resource sectors (Energy/Petrochemical; Mining/Smelting; and Forest Products).

Using these two variables about 50% of the variance is removed.

Conclusions

It is most difficult given the collinearity between the variables to separate clearly the effects of individual variables. Only by having a larger, randomly distributed sample and possibly relying on more sophisticated statistical procedures could one get at the effects more clearly. Nevertheless, in spite of the difficulties it is clear that the sample of firms interviewed in Alberta and Ontario did much more extensive Manpower Planning (perhaps because of the tighter labour markets) than those in Quebec and Nova Scotia. Because of the collinearity between size and industry sectors it is not possible to draw any inferences from this analysis. Without access to more data, we would, however, tend to rely on the inferences discussed earlier when we examined the raw data.

TABLE 5. PROVINCIAL SIZE/INDUSTRIAL SECTOR

1.0	Size	Median Years
	100	1.2
	101-500	2.1
	501-1,000	1.7
	1,000-5,000	2.3
	5,001	2.0

2.0	Industrial Sector	Median Years
	Energy/ Petrochem.	2.0
	Mnf.Machine Equipment	1.8
	Electronics	2.0
	Mining/ Smelting	4.8
	Forest Products	2.0
	Trade	2.2
	Mnf./ Automotive	2.0
	Mnf./ Aerospace	2.0
	Construction	2.0
	Transport/ Communic.	1.8
	Textiles	1.8
	Service	2.0
	Finance,Insur./ Real Estate	2.0
	Fishing	2.0
	Other	2.0

3.0 Over-all Median: 2.0 years

4.0 Variance Removed: 20%

TABLE 6. PROVINCE/INDUSTRIAL SECTOR

1.0 Prov. Effects	Median Years
Alberta	3.1
Ontario	3.4
Quebec	1.3
Nova Scotia	2.3

2.0 Industry Effects	Median Years
Industrial Sector	
Energy/ Petrochem.	4.2
Mnf.Machine Equipment	2.2
Electronics	2.8
Mining/ Smelting	3.4
Forest Products	3.5
Trade	3.0
Mnf./ Automotive	3.2
Mnf./ Aerospace	2.0
Construction	1.9
Transport/ Communic.	3.0
Textiles	2.6
Service	2.4
Finance,Insur./ Real Estate	2.7
Fishing	2.5
Other	2.5

3.0 Median Years of Planning: 2.7 years

4.0 Variance Removed: 50%

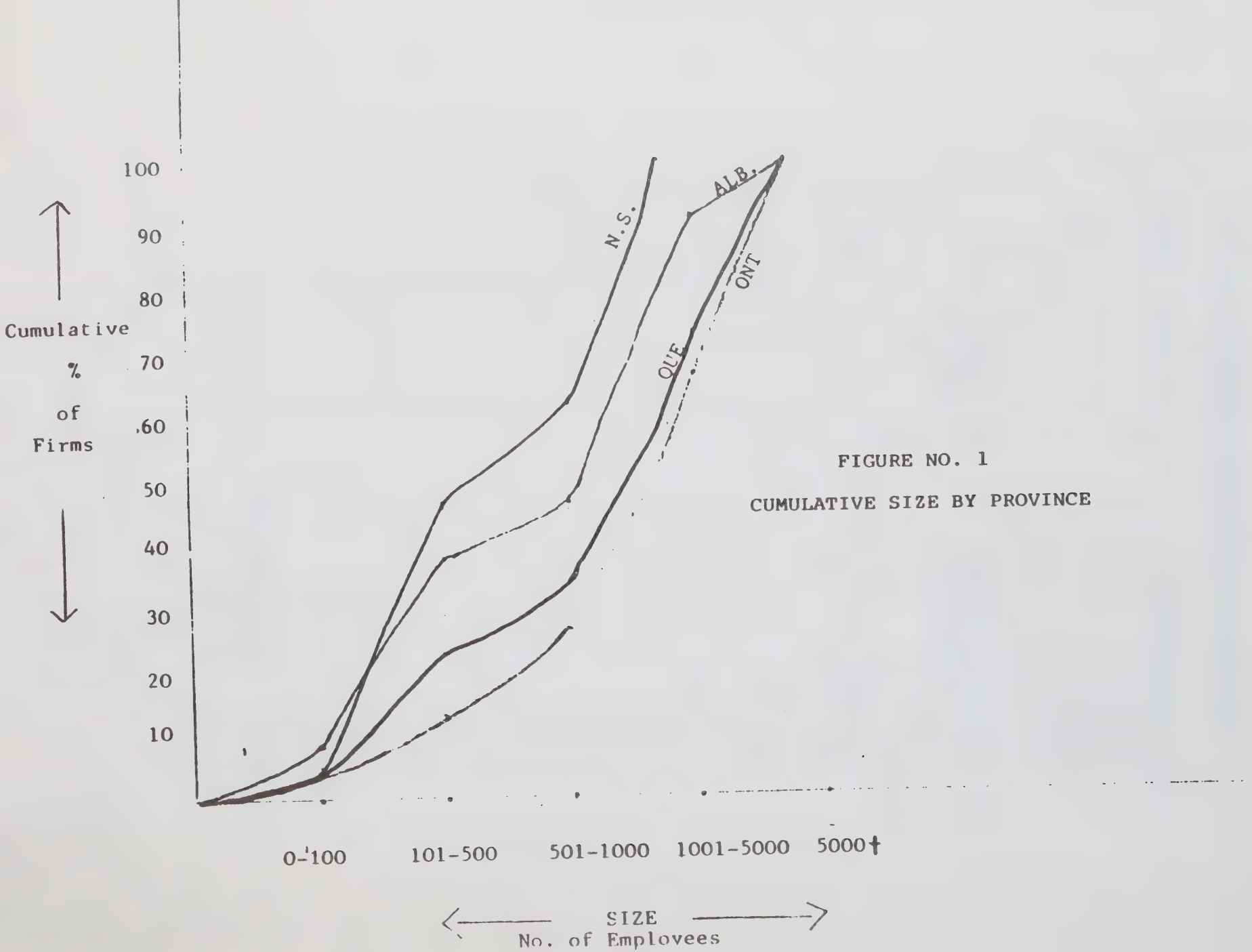


FIGURE NO. 1

CUMULATIVE SIZE BY PROVINCE

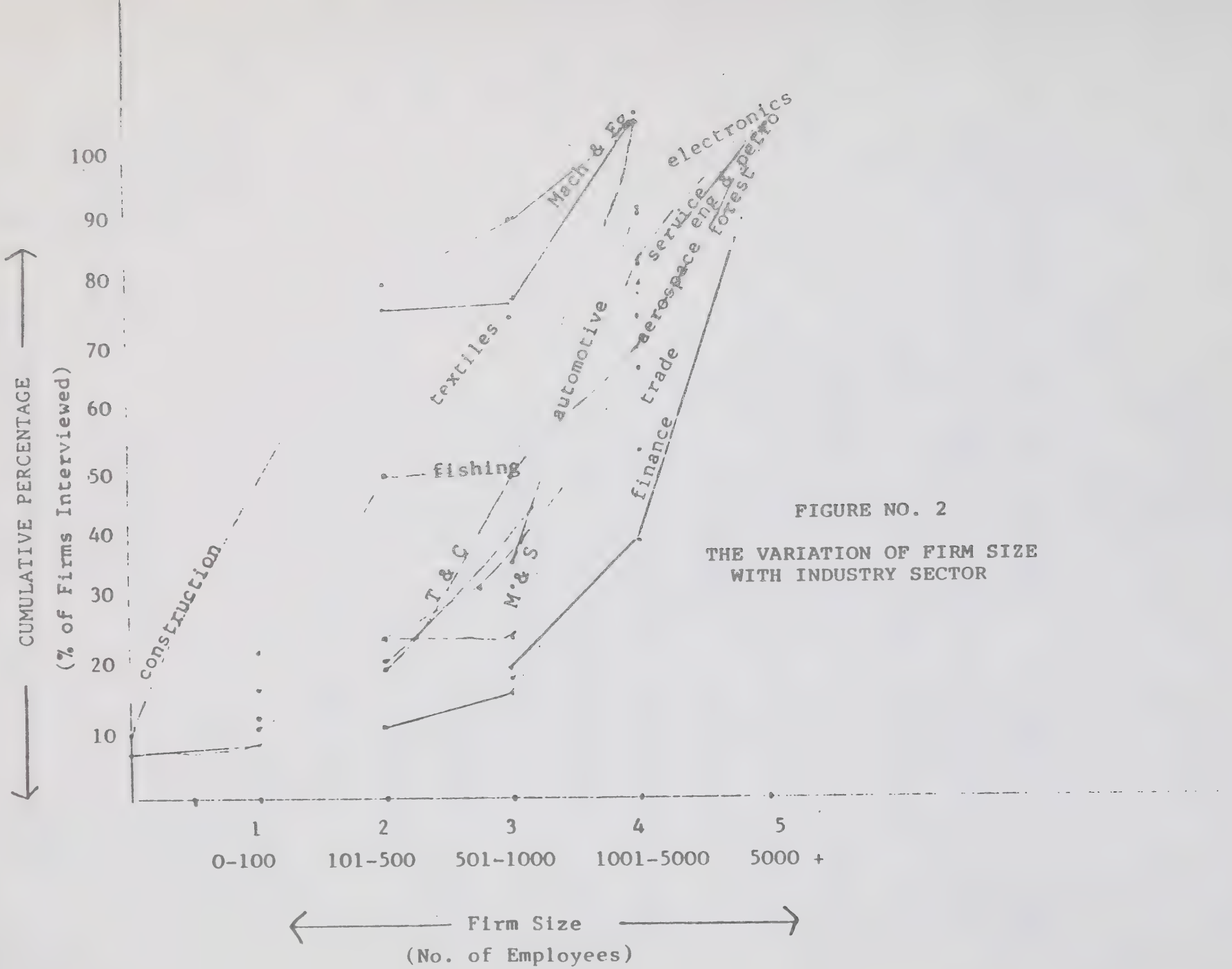


FIGURE NO. 2

THE VARIATION OF FIRM SIZE
WITH INDUSTRY SECTOR

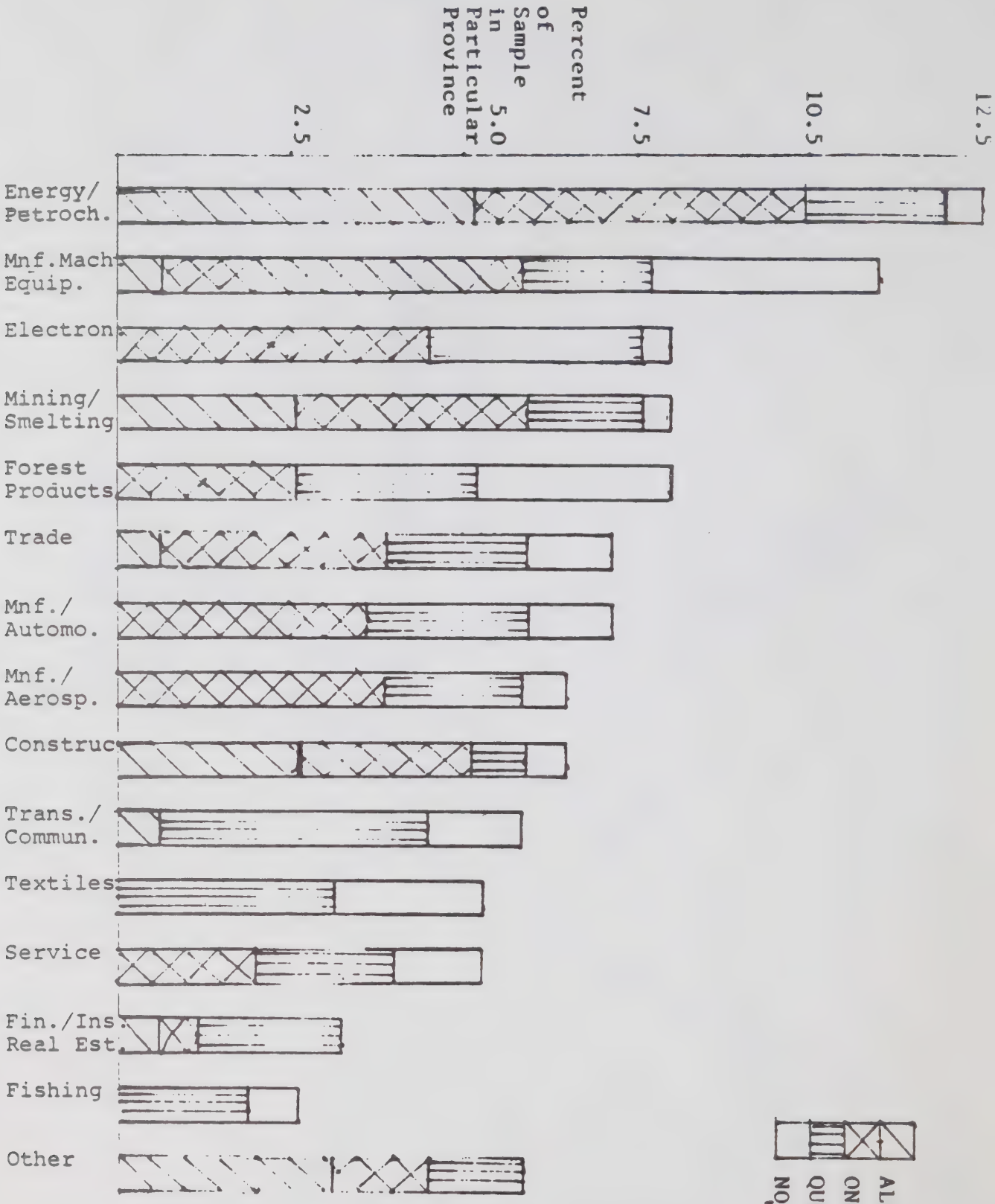


FIGURE NO. 3

INDUSTRY REPRESENTATION BY PROVINCE

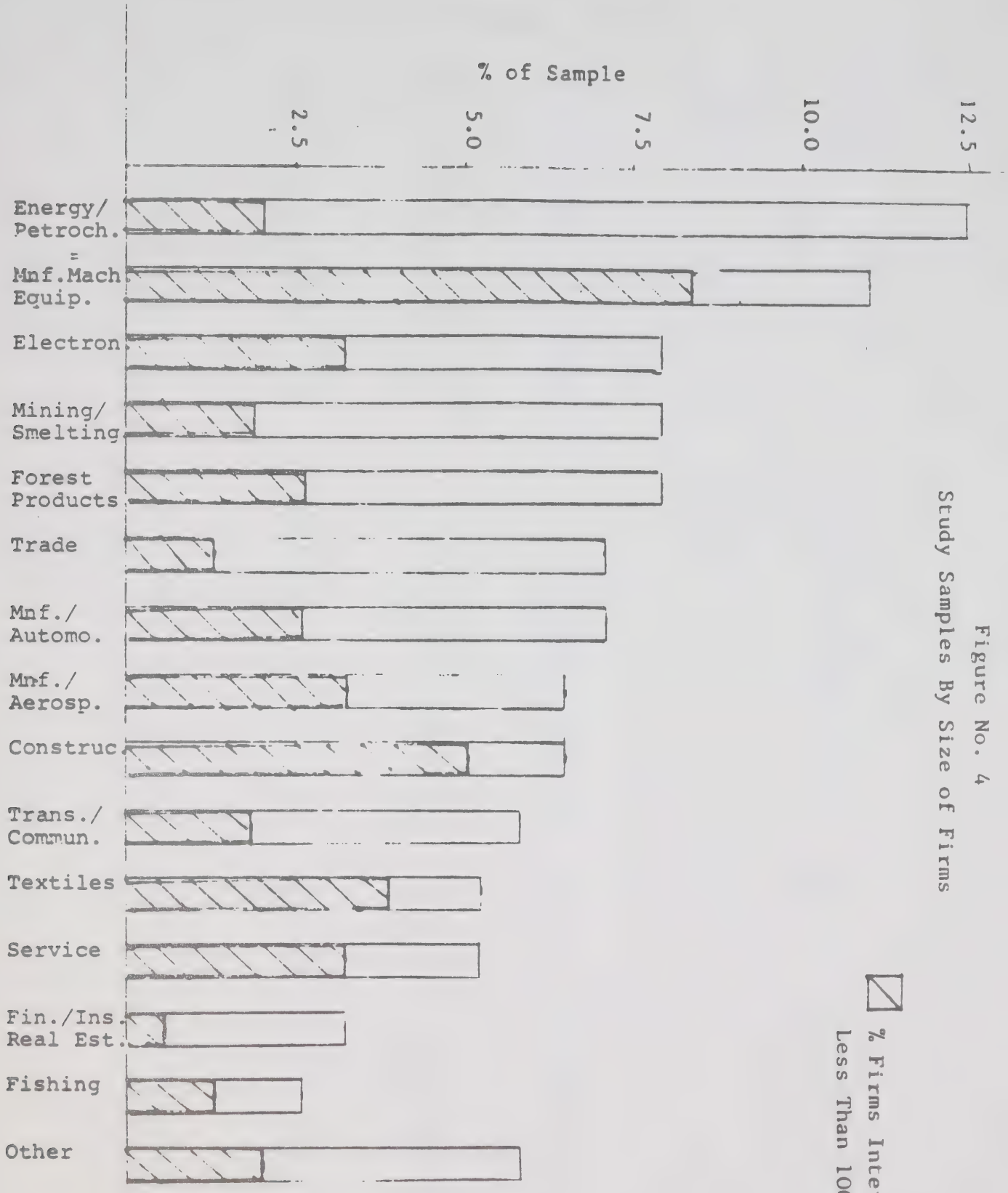


Figure No. 4
Study Samples By Size of Firms

FIGURE NO. 4

STUDY SAMPLES BY SIZE OF FIRMS

TABLE 1. MEDIAN POLISH

INPUT DATA

7.000	2.250	3.000	4.580	5.000
3.000	2.500	2.000	4.630	4.560
1.000	1.300	1.130	1.350	1.360
1.000	2.200	4.500	1.500	.000

MEAN ANALYSIS

2.327	-1.486	-1.331	-.108	.597	1.673
-.645	-.208	-1.303	.970	1.185	.645
-.535	.702	-.063	-.200	.095	-1.465
-1.147	.990	2.695	-.662	-1.877	-.853
.307	-.630	-.035	.322	.037	2.693

MEDIAN POLISH ANALYSIS

2.871	-1.779	-.694	.000	.255	1.719
.000	-.400	-.565	1.179	.944	.590
.000	.400	.565	-.101	-.255	-1.410
-.049	1.251	3.886	.000	-1.664	-1.361
-.129	-.229	-.564	.322	.487	2.539

TABLE 2. MEDIAN POLISH

INPUT DATA

4.600	4.900	1.250	5.000
3.000	2.000	1.200	1.500
.000	3.000	1.500	3.000
5.200	1.300	2.000	3.000
.000	1.500	3.000	4.500
1.000	4.880	1.250	3.000
.000	4.500	1.250	3.500
.000	2.000	1.250	1.000
1.500	3.000	1.000	1.000
5.000	.000	2.000	2.000
.000	.000	1.130	2.000
.000	3.000	1.000	1.000
.000	5.000	1.250	.000
.000	.000	1.000	1.000
2.000	4.500	1.000	.000

MEAN ANALYSIS

1.083	.231	-2.185	.870	2.030
1.496	-.656	-.223	-.617	.017
-1.454	.394	.127	.933	-.033
2.746	-2.306	-.373	-.067	.967
-1.829	-1.481	1.252	2.058	.342
-1.112	1.616	-.780	.275	.625
-1.892	1.456	-.560	.995	.405
-.642	.206	.690	-.255	-.845
.296	.644	-.123	-.817	-.283
3.171	-2.981	.252	-.442	.342
-.362	-1.514	.850	1.025	-1.125
-.829	1.019	.252	-.442	-.658
-1.142	2.706	.190	-1.755	-.345
-.079	-1.231	1.002	.308	-1.408
.546	1.894	-.373	-2.067	-.033
-.421	.731	-.502	.192	1.908

MEDIAN POLISH ANALYSIS

1.180	-.520	-2.930	.520	2.469
2.559	-.441	.000	.000	-.510
-.870	.130	-.130	1.070	-.081
3.609	-2.291	-.350	.350	.640
-1.120	-1.620	1.120	2.320	.169
-.470	1.410	-.980	.470	.519
-1.466	1.034	-.975	.975	.515
.000	.000	.491	-.059	-.951
.880	.380	-.380	-.680	-.331
3.909	-3.091	.150	-.150	.140
-.185	-2.185	.185	.755	-.766
-.120	.880	.120	-.180	-.831
-.245	2.755	.245	-1.305	-.706
.030	-1.970	.270	-.030	-.981
.880	1.380	.880	-.180	.119

TABLE 3. MEDIAN POLISH

INPUT DATA

.000	1.000	1.000	4.750	5.000
1.000	2.000	.000	2.000	.000
1.000	3.000	1.250	2.250	3.000
7.000	5.000	.000	4.750	3.000
.000	2.000	5.000	4.500	1.170
.000	.000	3.000	2.500	4.670
.000	.000	3.500	4.750	1.000
.000	1.250	2.000	3.000	1.250
5.000	2.830	1.000	1.000	.000
1.000	3.000	1.000	3.000	1.750
1.000	1.250	1.500	2.000	.000
.000	.000	.000	1.170	1.000
.000	.000	5.000	1.000	2.000
.000	1.000	.000	1.000	.000
.000	1.500	.000	1.000	4.830

MEAN ANALYSIS

-1.664	-1.186	-1.214	1.574	2.491	.598
.686	1.164	-.864	.174	-1.159	-.752
-.414	1.064	-.714	-.676	.741	.348
3.736	1.214	-3.814	-.026	-1.109	2.198
-1.848	-.370	2.602	1.140	-1.523	.782
-1.348	-1.870	1.102	-.360	2.477	.282
-1.164	-1.686	1.786	2.074	-1.009	.098
-.814	-.086	.636	.674	-.409	-.252
3.720	1.028	-.830	-1.792	-2.125	.214
-.264	1.214	-.814	.224	-.359	.198
.536	.264	.486	.024	-1.309	-.602
.252	-.270	-.298	-.090	.407	-1.318
-.914	-1.436	3.536	-1.426	.241	-.152
.286	.764	-.264	-.226	-.559	-1.352
-.780	.198	-1.330	-1.292	3.205	-.286
-.686	-.164	-.136	.826	.159	1.752

MEDIAN POLISH ANALYSIS

-.334	-.468	.000	2.516	3.816	-.318
.900	.766	-.766	.000	-.950	-.552
.000	.866	-.416	-.650	1.150	.348
4.150	1.016	-3.516	.000	-.700	2.198
-.866	.000	3.468	1.734	-.546	.214
-.600	-1.734	1.734	.000	3.220	-.052
-.150	-1.284	2.684	2.700	.000	-.502
-.400	-.284	.934	.700	.000	-.252
4.666	1.362	.000	-1.234	-1.184	-.318
.000	.866	-.666	.100	-.100	.348
.884	.000	.718	-.016	-.966	-.536
.666	-.468	.000	-.064	.816	-1.318
.000	-1.134	1.334	-.900	1.150	-.652
.666	.532	.000	-.234	-.184	-1.318
.000	.334	.666	.900	3.980	-.652